Alex Murshteyn, Site Acquisition Consultant
c/o Cellco Partnership d/b/a Verizon Wireless
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (508) 821-0159
AMurshteyn@centerlinecommunications.com

February 2, 2018

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification // Site: Branford 2 CT (ATC: 302484)
405 Brushy Plain Road, Branford, CT 06405
N 41.3168 // W 72.8197

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless currently maintains twelve (12) antennas at the 113-foot mount on the existing 150-foot monopole tower, located at 405 Brushy Plain Road, Branford, CT. The Council approved Verizon Wireless use of the existing tower in 2000. The tower is owned by American Tower. The property is owned by Edward F. Jr. & Kristen Jaconette. Verizon Wireless now intends to remove six (6) of its antennas and replace with six (6) newer JAHH-65B-R3B models on side-by-side mounts for LTE/PCS/AWS (700/850/1900/2100 MHz) upgrades. Additionally, Verizon Wireless will deploy three (3) reserved and install nine (9) additional remote radio heads (RRHs) for twelve (12) total new RRHs; while updating certain leased equipment rights, as reflected by the final configuration outlined in the structural analysis and proposed hereby.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to James B. Cosgrove, First Selectman for the Town of Branford, its Town Planner Harry Smith, including for the Planning and Zoning Department, and American Tower, the tower owner and to the ground owners, Edward F. Jr. & Kristen Jaconette.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2). Enclosed to accommodate this filing are specifications for all the new and replacement Verizon Wireless equipment, a structural analysis dated December 19,

2017 by A.T. Engineering Service, PLLC and radio frequency (RF) analysis table showing worst-case RF emission calculation by Verizon Wireless RF Design Engineering.

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the new antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading, as shown in the attached structural analysis by A.T. Engineering Service, PLLC, dated December 19, 2017.

For the foregoing reasons, Verizon Wireless respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Alex Mushteyn, Site Acquisition Consultant
c/o Cellco Partnership d/b/a Verizon Wireless
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767
Mobile: (508) 821-0159
AMushteyn@centerlinecommunications.com

Attachments

cc: James B. Cosgrove, First Selectman - as elected official - 1Z9Y45030314484402
Harry Smith, Town Planner - as P&Z official - 1Z9Y45030304852425
American Tower Corporation - as tower owner - 1Z9Y45030315339433
Edward F. Jr. & Kristen Jaconette - as property owner - 1Z9Y45030303228441

Product Specifications

COMMSCOPE®

JAHH-65B-R3B

8-port sector antenna, 2x 698–787, 2x 824-894 and 4x 1695–2360 MHz, 65° HPBW, 3x RET and low bands have diplexers. Internal SBT's on first LB(Port 1) and first HB (Port 5).

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One RET for 700MHz, one RET for 850MHz, and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO
- Internal filter on low band and interleaved dipole technology providing for attractive, low wind load mechanical package
- Separate RS-485 RET input/output for low and high band

Electrical Specifications

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.5	15.8	18.0	18.4	18.5	18.8
Beamwidth, Horizontal, degrees	67	65	63	63	65	68
Beamwidth, Vertical, degrees	12.4	10.5	5.7	5.2	4.9	4.4
Beam Tilt, degrees	2–14	2–14	0–10	0–10	0–10	0–10
USLS (First Lobe), dB	18	18	20	20	21	23
Front-to-Back Ratio at 180°, dB	32	34	31	35	36	38
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.3	14.9	17.6	18.1	18.2	18.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.5	±0.6	±0.4	±0.5	±0.6
	2 ° | 14.3	2 ° | 15.0	0 ° | 17.2	0 ° | 17.6	0 ° | 17.7	0 ° | 17.9
Gain by Beam Tilt, average, dBi	8 ° | 14.3	8 ° | 14.9	5 ° | 17.6	5 ° | 18.2	5 ° | 18.3	5 ° | 18.7
	14 ° | 14.3	14 ° | 15.4	10 ° | 17.6	10 ° | 18.2	10 ° | 18.3	10 ° | 18.7
Beamwidth, Horizontal Tolerance, degrees	±1.2	±1.4	±4	±2.4	±2.9	±2.7
Beamwidth, Vertical Tolerance, degrees	±0.9	±0.5	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	18	17	17	18	19	18
Front-to-Back Total Power at 180° ± 30°, dB	25	24	26	29	27	29
CPR at Boresight, dB	22	23	20	21	21	24
CPR at Sector, dB	11	12	11	11	11	8

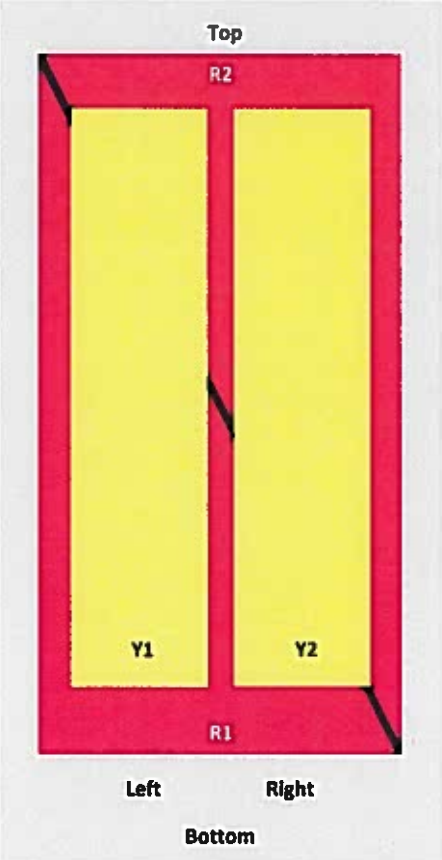
* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

Array Layout

Product Specifications

JAHH-65B-R3B

JAHH-65A-R3B JAHH-65B-R3B JAHH-65C-R3B



Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-798	1-2	1	ANxxxxxxxxxxxxxx1
R2	824-894	3-4	2	ANxxxxxxxxxxxxxx2
Y1	1695-2360	5-6	3	ANxxxxxxxxxxxxxx3
Y2	1695-2360	7-8		

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

General Specifications

Operating Frequency Band	1695 – 2360 MHz | 698 – 787 MHz | 824 – 894 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

Mechanical Specifications

RF Connector Quantity, total	8
RF Connector Quantity, low band	4
RF Connector Quantity, high band	4
RF Connector Interface	4.3-10 Female
Color	Light gray

Product Specifications

COMMSCOPE®

JAHH-65B-R3B

Grounding Type	RF connector body grounded to reflector and mounting bracket
Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	746.0 N @ 150 km/h 167.7 lbf @ 150 km/h
Wind Loading, lateral	243.0 N @ 150 km/h 54.6 lbf @ 150 km/h
Wind Loading, rear	776.0 N @ 150 km/h 174.5 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Length	1828.0 mm | 72.0 in
Width	350.0 mm | 13.8 in
Depth	208.0 mm | 8.2 in
Net Weight, without mounting kit	28.7 kg | 63.3 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 | Port 5
Internal RET	High band (1) | Low band (2)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Single RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male

Packed Dimensions

Length	1975.0 mm | 77.8 in
Width	456.0 mm | 18.0 in
Depth	357.0 mm | 14.1 in
Shipping Weight	42.0 kg | 92.6 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

Product Specifications

COMMSCOPE®

BSAMNT-1

Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

General Specifications

Application	Outdoor
Includes	Brackets | Hardware
Package Quantity	1

Mechanical Specifications

Color	Silver
Material Type	Galvanized steel

Dimensions

Compatible Diameter, maximum	115.0 mm | 4.5 in
Compatible Diameter, minimum	60.0 mm | 2.4 in
Net Weight	6.0 kg | 13.3 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Product Specifications

COMMSCOPE®

BSAMNT-SBS-2-2

Side-by-Side Mounting Kit for these antennas: JAHH-65A/B/C, JAHH-45A, NHH-45A, SBNHH-1D45A/B

- 4x4 MIMO capability at both UMTS and LTE band for faster data throughput
- Ensures consistent distance between the antennas for each site (2 inches / 50mm)
- Forces both antennas to point to the same boresight direction
- Designed to be attached to 2.4 - 4.5 in (60 - 115mm) OD pipes

General Specifications

Application	Outdoor
Includes	Brackets | Hardware
Package Quantity	1

Mechanical Specifications

Color	Silver
Material Type	Galvanized steel

Dimensions

Compatible Diameter, maximum	115.0 mm | 4.5 in
Compatible Diameter, minimum	60.0 mm | 2.4 in
Net Weight	30.6 kg | 67.4 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

ALCATEL-LUCENT B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

Supporting 2Tx/4Tx MIMO and 2-way/4-way Rx diversity, the Alcatel-Lucent B66a RRH4x45 allows operators to have a compact radio solution to deploy LTE in the 2100 band (3GPP band 4, 10, and 66), providing them with the means to achieve high capacity, high quality, high reliability, large instantaneous bandwidth, and high coverage with minimum site requirements.

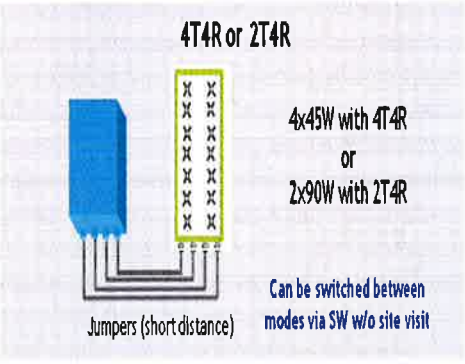
The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.

The Alcatel-Lucent B66a RRH4x45 is a compact (near zero-footprint) solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports



BENEFITS

- Compact to reduce additional footprint when adding LTE in AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall

TECHNICAL SPECIFICATIONS

Features & Performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R selectable by SW)
Frequency band	AWS 1-3, B4/B66a DL: 2110-2180 MHz / UL: 1710-1780 MHz
Instantaneous bandwidth - #carriers	70 MHz – 4 LTE MIMO carriers (in 70 MHz occupied bandwidth)
LTE carrier bandwidth	5, 10, 15, 20 MHz
RF output power	2x90W or 4x45W (selectable by SW)
Noise figure – RX Diversity scheme Receiver Sensivity (FRC A1-3)	2 dB typical (<2.5 dB max) – 2 or 4 way Rx diversity -104.5 dBm maximum
Sizes (HxWxD) in mm (in.) Volume in Liters Weight in kg (lb) (w/o mounting HW)	655x299x182 (25.8x11.8x7.2) (with solar shield) 640x290x160 (25.2x11.4x6.3) (without solar shield) 35.5 (with solar shield) 29.7 (without solar shield) 25.8kg (56.8lb) (with solar shield)
DC voltage range DC power consumption	Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 750W typical @100% RF load (in 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) UL50E Type 4 Enclosure 250N (56lb) Frontal/150N (34lb) Lateral
Antenna ports	4 ports 4.3-10 female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate 7, 9.8 Gbps) SFP: SMDF (HW supports also SMSF and MMDF)
AISG interfaces	1 AISG 2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-487 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 / FCC Part 15 / GR-3178-CORE

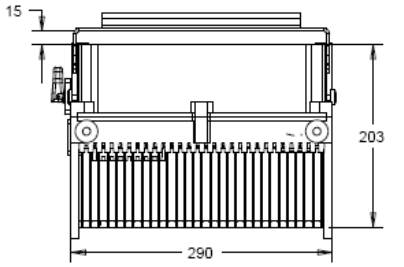
Alcatel·Lucent

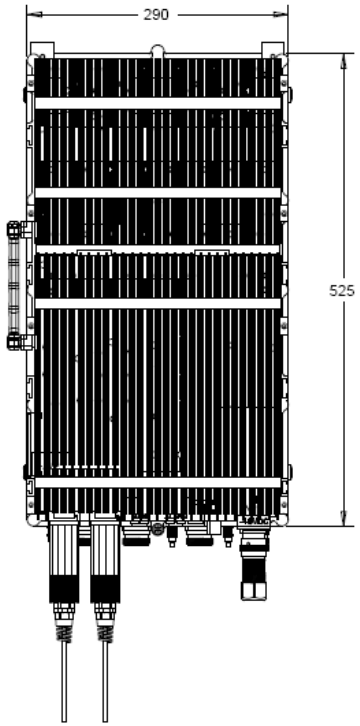
700 2x60 RRH Preliminary Dimensions

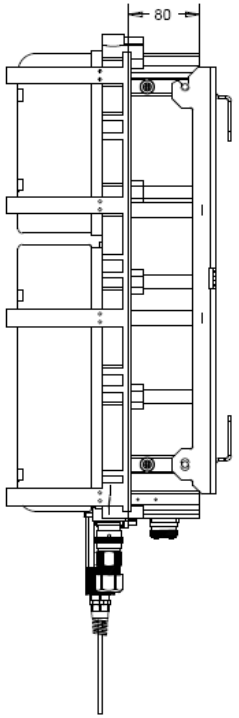
Robert Thompson (robert.thompson@alcatel-lucent.com)

700U

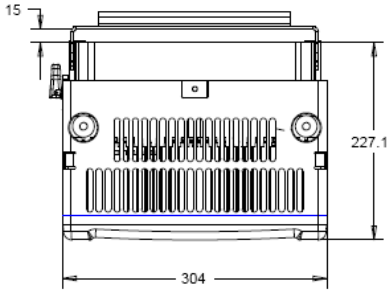
Without Solar Shield

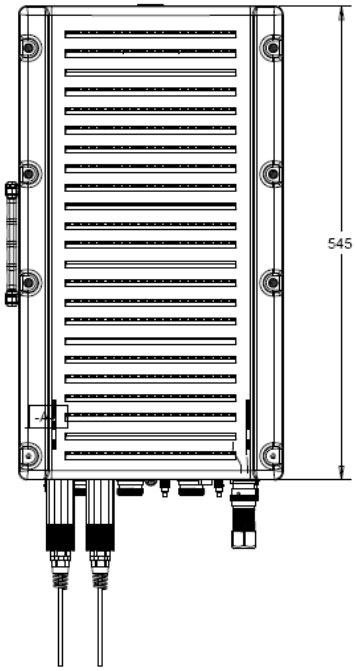


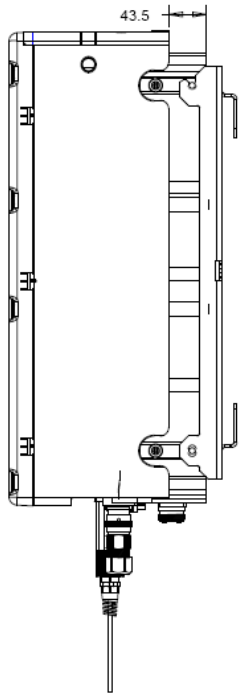




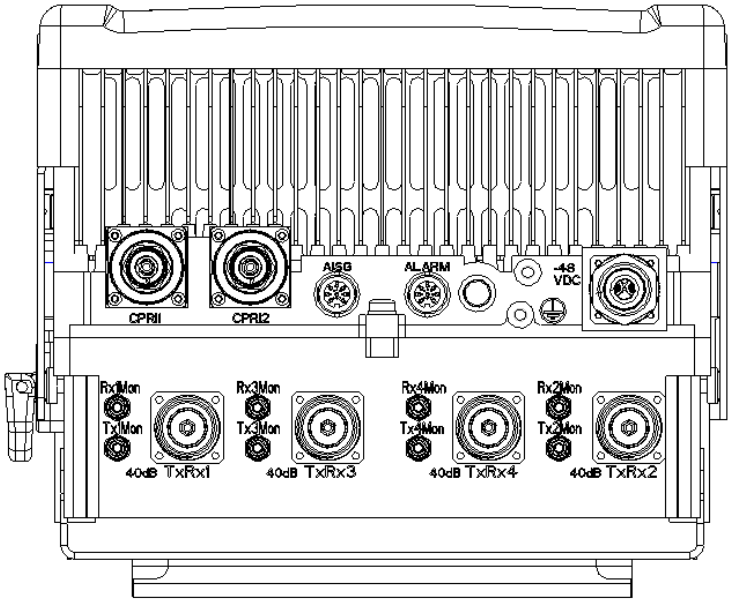
With Solar Shield







700 U 2x60 Dimensions



Without solar shield	L	W	H	Volume	Weight	Weight of Solar shield
700U(without solar shield)- mm	525	290	203	30.9L	24.2kg	
700U(without solar shield)	21”	11.5”	8”		53.4 lb	
700U(with solar shield)	545	304	227	37.6L	25.7kg	1.5kg
700U(with solar shield)	21.5”	12”	9”		56.7 lb	3.1 lb

ALCATEL-LUCENT
WIRELESS PRODUCT DATASHEET
RRH2X60-1900A-4R FOR BAND 2/25 APPLICATIONS

The Alcatel-Lucent RRH2x60-1900A-4R is a high power, small form factor Remote Radio Head operating in the PCS 1900MHz frequency band for WCDMA and LTE technologies. It is designed with an eco-efficient approach, providing operators with the means to achieve high quality and high capacity coverage with minimum site requirements and efficient operation.

A distributed Node B expands the deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of a Node B to be installed separately, within the same site or several kilometers apart.

The Alcatel-Lucent RRH2x60-1900A-4R is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information.

SUPERIOR RF PERFORMANCE

The Alcatel-Lucent RRH2x60-1900A-4R integrates all the latest technologies. This allows operators to offer best-in-class characteristics.

It delivers an outstanding 120 watts of total RF power thanks to its two transmit RF paths of 60 W each.

It is ideally suited to support multiple-input multiple-output (MIMO) 2x2 operation.

It includes four RF receivers to natively support 4-way uplink reception diversity. This improves the radio uplink coverage and this can be used to extend the cell radius commensurate with 2x2MIMO 2x60 W for the downlink.

The latest generation power amplifiers (PA) used in this product achieve high efficiency (>40%), resulting in improved power consumption figures.

OPTIMIZED TCO

The Alcatel-Lucent RRH2x60-1900A-4R is designed to make available all the benefits of a distributed Node B, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX).

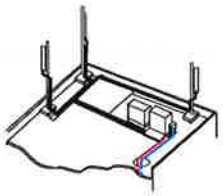
The Alcatel-Lucent RRH2x60-1900A-4R is a very cost-effective solution to deploy LTE MIMO.

EASY INSTALLATION

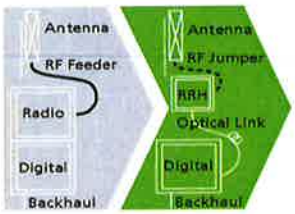
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-1900A-4R installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

The Alcatel-Lucent RRH2x60-1900A-4R is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

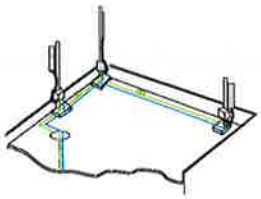
Installation can easily be done by a single person as the Alcatel–Lucent RRH2x60-190A-4R is compact and weighs about 21 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

- RRH2x60-1900A-4R integrates two power amplifiers of 60W rating (at each antenna connector)
- RRH2x60-1900A-4R can operate WCDMA only, LTE only or a mix of WCDMA and LTE
- RRH2x60-1900A-4R offers the possibility for WCDMA (non MIMO) to operate the two radio chains independently (2 blocks of 20 MHz anywhere in the band)
- RRH2x60-1900A-4R is a very compact and lightweight product
- Advanced power management techniques are embedded to provide power savings, such as PA bias control

BENEFITS

- MIMO deployment and/or WCDMA and LTE simultaneous operation with only one single unit per sector
- Improved uplink coverage with built-in 4-way receive diversity capability
- RRH can be mounted close to the antenna, eliminating nearly all losses in RF cables and thus reducing power consumption by 50% compared to conventional solutions
- Distributed configurations provide easily deployable and cost-effective solutions, near zero footprint and silent solutions, with minimum impact on the neighborhood, which ease the deployment
- RETA and TMA support without additional hardware thanks to the AISG v2.0 port and the integrated Bias-Tees. Bias-Tees support AISG DC supply and signaling.

TECHNICAL SPECIFICATIONS

Specifications listed are hardware capabilities. Some capabilities depend on support in a specific software release or future release.

Dimensions and weights

- HxWxD : 500x285x208 mm (30l with solar shield)
- Weight : 21 kg (46 lbs) (with solar shield)

Electrical Data

- Power Supply : -48V DC (-40.5 to -57V)
- Power Consumption: 460W typ. @2x60W (100%RF)

RF Characteristics

- Supported spectrum: DL 1930-1990 / UL 1850-1910
- Frequency band: 3GPP band 2/25
- Output power: 2x60W at antenna connectors
- Technology supported: W-CDMA and LTE
- Instantaneous bandwidth: 20 MHz (MIMO) or 2x20 MHz (non MIMO)
- Rx diversity: 2-way and 4-way uplink reception
- Typical sensitivity without Rx diversity: -124.8dBm for WCDMA and -105 dBm for LTE

Connectivity

- Two CPRI optical ports for daisychaining and up to six RRHs per fiber
- Type of optical fiber: Single-Mode (SM) and Multi-Mode (MM) SFPs
- Optical fiber length: up to 500m using MM fiber, up to 15km using SM fiber
- TMA/RETA: AISG 2.0 (RS485 connector and internal Bias-Tee)
- Six external alarms
- Surge protection for all external ports (DC and RF)

Environmental specifications

- Operating temperature: -40°C to 55°C including solar load
- Operating relative humidity: 8% to 100%
- Environmental Conditions: ETS300-019-1-4 class4.1E
- Ingress Protection: IEC 60529 IP65
- Acoustic Noise : Noiseless (natural convection cooling)

Safety and Regulatory Data

- EMC : 3GPP 25113, EN 301 489-1, EN 301 489-23, GR 1089
- Safety : IEC60950-1, EN 60825-1
- Regulatory: CE Mark-European Directive 2002/95/EC (RoHS), 2002/96/EC (WEEE), 1999/5/EC (R&TTE)
- Health : EN 50385

Alcatel·Lucent

Alcatel-Lucent RRH2x40-07-L

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-07-L is a high-power, small form-factor Remote Radio Head (RRH) operating in the North American Digital Dividend / 700MHz frequency band (3GPP Bands 12 and 17). The Alcatel-Lucent RRH2x40-07-L is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-07-L is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-07-L has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to two-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 15 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-07-L is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-07-L installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-07-L is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-07-L is compact and weights less than 27 kg (60 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.

Excellent RF performance

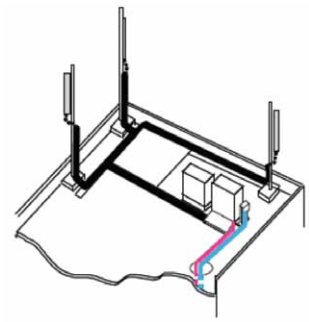
Because of its small size and weight, the Alcatel-Lucent RRH2x40-07-L can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-07-L where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-07-L provides more RF power while at the same time consuming less electricity.

Features

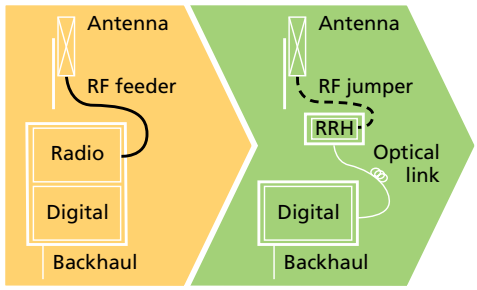
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless), noise-free, and heaterless unit
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

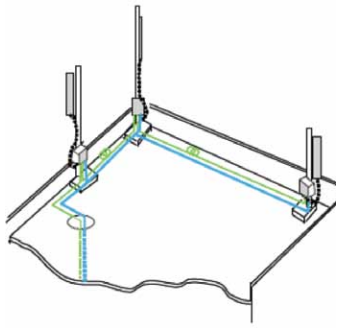
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 520 mm (20.5 in.)
- Width: 270 mm (10.63 in.)
- Depth: 226m (8.9 in.)
- Weight (without mounting kit): less than 27 kg (60 lb)

Power

- Power supply: -48V

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 700 MHz; 3GPP Band 12 (incl Band 17)
- Bandwidth: up to 15 MHz
- RF output power at antenna port:
  - ¬ 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way
- Noise figure: below 2.5 dB typical
- ALD features
  - ¬ TMA
  - ¬ Remote electrical tilt (RET) support (AISG v2.0)

Optical characteristics

Type/number of fibers

- Up to 3.12 Gb/s line bit rate
- Single-mode variant
  - ¬ One SM fiber (9/125 µm) per RRH2x, carrying UL and DL using CWDM (at 1550/1310 nm)
- Multi-mode variant
  - ¬ Two MM fibers (50/125 µm) per RRH2x: one carrying UL, the other carrying DL (at 850 nm)

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Alarms and ports

- Six external alarms
- Two optical ports to support daisy-chaining

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Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**Branford CT 6, CT**
ATC Site Number	:	**302484**
Engineering Number	:	**OAA720088_C3_01**
Proposed Carrier	:	**Verizon Wireless**
Carrier Site Name	:	**Branford 2 CT**
Carrier Site Number	:	**PSLC# 467297**
Site Location	:	**405 Brushy Plain Rd** **Branford, CT 06405-2308** **41.316800,-72.819700**
County	:	**New Haven**
Date	:	**December 19, 2017**
Max Usage	:	**93%**
Result	:	**Pass**

Prepared By:
Travis J. Gatling
Structural Engineer I

Travis J. Gatling

Reviewed By:

STATE OF CONNECTICUT
BRYAN K LANIER
32588
LICENSED PROFESSIONAL ENGINEER

Dec 20 2017 8:34 AM cosign

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by Verizon Wireless.

Supporting Documents

Tower Drawings	PJF Job # 29297-629, dated October 2, 1997
Foundation Drawing	Mapped by ATC Tower ID #302484, dated February 13, 2009
Geotechnical Report	Clarence Welti Geotechnical Engineering ID #CT-0020, dated October 8, 1996
Modifications	SpectraSite Drawing CT-0020 M1 dated March 26, 2004 ATC Job # 26487334 dated September 15, 2006 ATC Job # 53055832 dated June 2, 2013

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	101 mph (3-Second Gust V_{ASD}) / 130 mph (3-Second Gust V_{ULT})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.24, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
150.0	159.0	2	11' Dipole	Platform w/ Handrails	(5) 7/8" Coax (1) 1 5/8" Coax	Other
	158.0	1	4' Omni			
	153.0	6	Powerwave 7020.00 Dual Band RET		(6) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk (1) 3" Conduit	AT&T Mobility
	151.0	3	Diplexer / Coupler			
		6	Powerwave LGP21401			
		1	Raycap DC6-48-60-18-8F ("Squid")			
		3	Ericsson RRUS 11 (Band 12) (55 lb)			
		3	Ericsson RRUS 32 B2			
		3	Powerwave 7770.00			
		3	CCI HPA-65R-BUU-H6			
	150.0	1	GPS		(1) 1/2" Coax	Verizon
136.0	136.0	3	Ericsson KRY 112 144/1	T-Arms	(12) 1 5/8" Coax (1) 1 1/4" Hybriflex	T-Mobile
		3	Ericsson RRUS 11 (Band 12)			
		3	Ericsson AIR 21, 1.3 M, B2A B4P			
		3	Ericsson AIR 21, 1.3M, B4A B2P			
		3	Andrew LNX-6515DS-VTM			
131.0	131.0	2	DragonWave Horizon Compact	Clearwire Mount	(6) 5/16" Coax (4) 1/2" Coax (2) 2" Conduit	Clearwire
		1	12" x 12" Junction Box			
		1	DragonWave A-ANT-23G-1-C			
		3	NextNet BTS-2500			
		3	Argus LLPX310R			
		1	DragonWave A-ANT-18G-2.5-C			
123.0	123.0	1	SWR FMEC/1	Flush	(3) 1/2" Coax	Alma Radio
113.0	113.0	2	RFS DB-T1-6Z-8AB-0Z	T-Arms	(6) 1 1/4" Coax (2) 1 5/8" Hybriflex	Verizon
		6	Commscope JAHH-65B-R3B			
70.0	70.0	1	4' Std. Dish	Leg	(1) 0.28" RG-6	Other

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
113.0	113.0	1	Antel BXA-171063-8CF-EDIN-X	-	(4) 1 1/4" Coax (1) 1/4" Coax	Verizon
		2	Antel BXA-171085-8CF			
		3	Alcatel-Lucent B66a RRH4x45 (AWS-3)			
		3	Alcatel-Lucent RRH2x40-AWS			
		3	Alcatel-Lucent PCS B25 RRH2x60/4x30			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
113.0	113.0	3	Alcatel-Lucent RRH2x40-07-L	T-Arms	-	Verizon
		3	Alcatel-Lucent RRH 2X60-1900			
		3	Alcatel-Lucent RRH2x60 700			
		3	Nokia B66a RRH4x45 (UHIE)			
		4	RFS APL868013-12T0			
		2	RFS APL866513-12T0-00			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	73%	Pass
Shaft	83%	Pass
Base Plate	46%	Pass
Flanges	25%	Pass
Reinforcement	93%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3,099.2	32%
Axial (Kips)	44.9	49%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
131.0	DragonWave A-ANT-23G-1-C	Clearwire Corporatio	1.538	1.425
	DragonWave A-ANT-18G-2.5-C			
113.0	Alcatel-Lucent RRH2x40-07-L	Verizon Wireless	1.145	1.137
	Alcatel-Lucent RRH 2X60-1900			
	Alcatel-Lucent RRH2x60 700			
	Nokia B66a RRH4x45 (UHIE)			
	RFS APL868013-12T0			
	RFS APL866513-12T0-00			
	Commscope JAHH-65B-R3B			
70.0	4' Std. Dish	Other	0.430	0.721

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

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Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

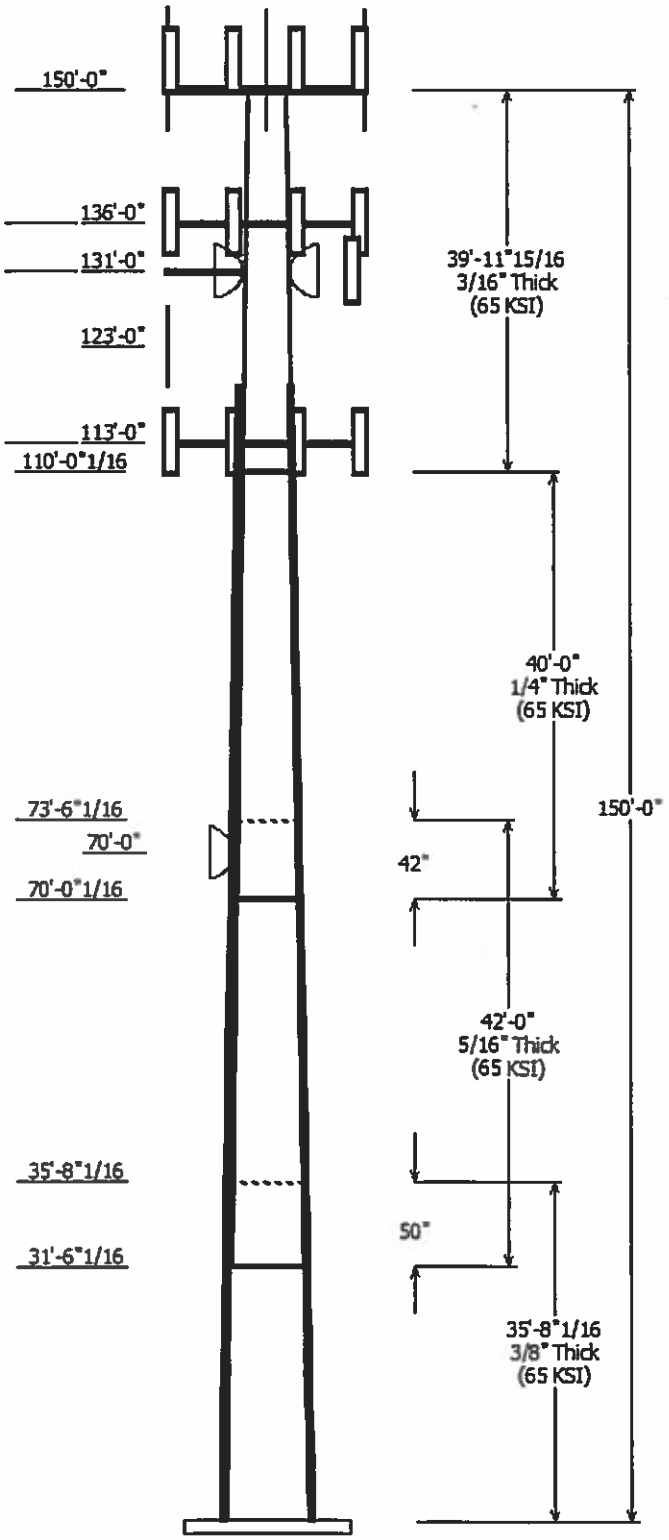
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Job Information

Pole : 302484	Code: ANSI/TIA-222-G
Location : Branford CT 6, CT	
Description : 150 ft. ITT Meyer - Model verified 10/25/11	
Client : VERIZON WIRELESS	Struct Class : II
Shape : 12 Sides	Exposure : B
Height : 150.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.156706 in/ft)	

Sections Properties

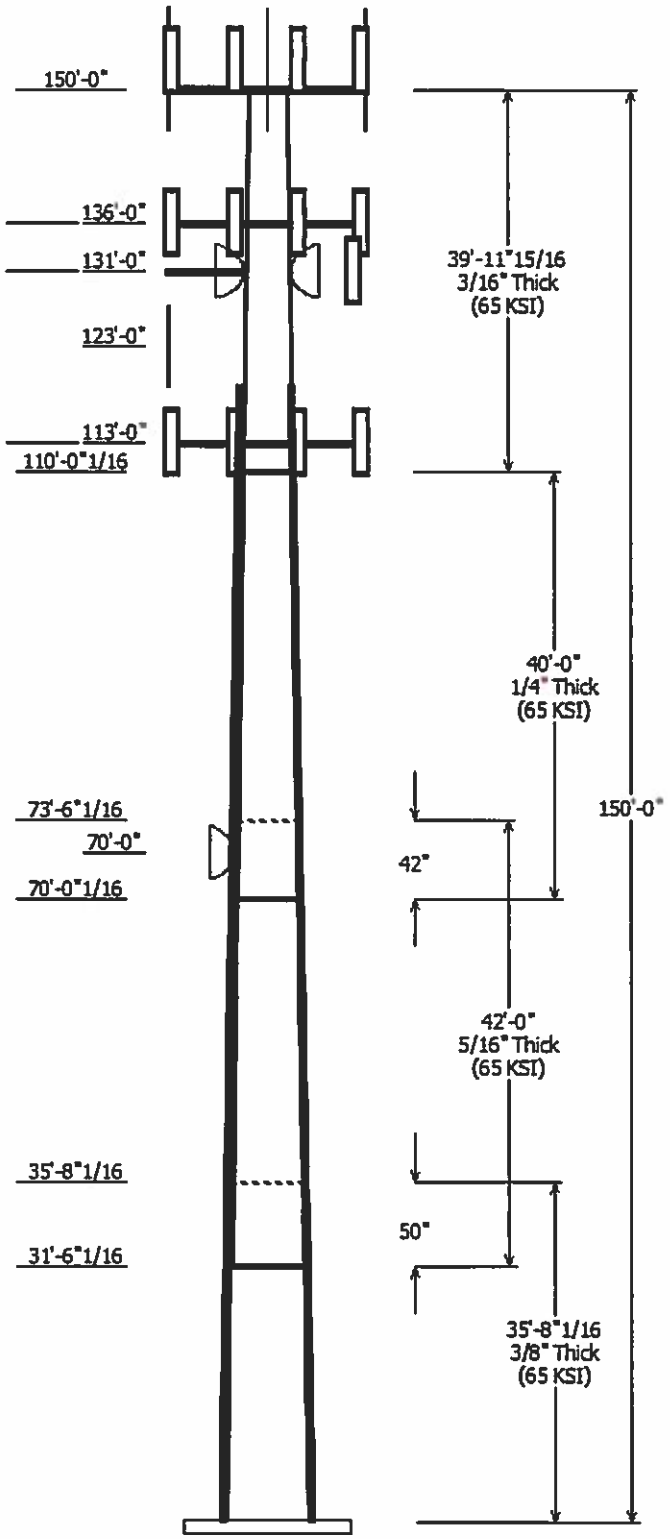
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Steel Grade Shape	(ksi)
1	35.670	31.79	37.38	0.375		0.000	Round	65
2	42.000	26.48	33.06	0.313	Slip Joint	50.000	Round	65
3	40.000	21.26	27.53	0.250	Slip Joint	42.000	Round	65
4	39.997	15.00	21.26	0.188	Butt Joint	0.000	Round	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.000	159.000	2	11' Dipole
150.000	151.000	3	CCI HPA-65R-BUU-H6
150.000	151.000	3	Ericsson RRUS 32 B2
150.000	151.000	6	Powerwave LGP21401
150.000	153.000	6	Powerwave Allgon 7020.00
150.000	150.000	3	Round Side Arm
150.000	151.000	1	Raycap DC6-48-60-18-8F
150.000	151.000	3	Powerwave Allgon 7770.00
150.000	150.000	1	Flat Platform w/ Handrails
150.000	150.000	1	GPS
150.000	151.000	3	Ericsson RRUS 11 (Band 12) (55
150.000	151.000	3	Diplexer / Coupler
150.000	158.000	1	4' Omni
136.000	136.000	3	Andrew LNX-6515DS-VTM
136.000	136.000	3	Round T-Arm
136.000	136.000	3	Ericsson AIR 21, 1.3M, B4A B2P
136.000	136.000	3	Ericsson AIR 21, 1.3 M, B2A B4
136.000	136.000	3	Ericsson RRUS 11 (Band 12)
136.000	136.000	3	Ericsson KRY 112 144/1
131.000	131.000	1	Clearwire Mount
131.000	131.000	1	DragonWave A-ANT-18G-2.5-C
131.000	131.000	3	Argus LLPX310R
131.000	131.000	3	NextNet BTS-2500
131.000	131.000	1	DragonWave A-ANT-23G-1-C
131.000	131.000	1	12" x 12" Junction Box
131.000	131.000	2	DragonWave Horizon Compact
123.000	123.000	1	SWR FMEC/1
113.000	113.000	3	Alcatel-Lucent RRH 2X60-1900
113.000	113.000	3	Alcatel-Lucent RRH2x40-07-L
113.000	113.000	3	Alcatel-Lucent RRH2x60 700
113.000	113.000	6	Commscope JAHH-65B-R3B
113.000	113.000	3	Nokia B66a RRH4x45 (UHIE)
113.000	113.000	2	RFS APL866513-12T0-00
113.000	113.000	4	RFS APL868013-12T0
113.000	113.000	2	RFS DB-T1-6Z-8AB-0Z
113.000	113.000	3	Round T-Arm
70.000	70.000	1	4' Std. Dish

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
123.0	136.0	1 5/8" Coax	Yes



65.000	123.0	1 5/8" Coax	Yes
0.000	131.0	1/2" Coax	Yes
0.000	131.0	2" Conduit	Yes
0.000	131.0	5/16" Coax	Yes
0.000	136.0	1 1/4" Hybriflex	Yes
0.000	150.0	0.39" Fiber Trunk	No
0.000	150.0	0.78" 8 AWG 6	No
0.000	150.0	1 5/8" Coax	Yes
0.000	150.0	1 5/8" Coax	No
0.000	150.0	1/2" Coax	No
0.000	150.0	3" Conduit	No
0.000	150.0	7/8" Coax	No
0.000	19.750	PL 1" x 5"	Yes
0.000	65.000	#18 Dywidag Bars	Yes
0.000	65.000	1 5/8" Coax	Yes
0.000	70.000	0.28" RG-6	Yes
0.000	113.0	1 1/4" Coax	No
0.000	113.0	1 5/8" Hybriflex	Yes
0.000	123.0	#18 Dywidag bars	Yes
0.000	123.0	1/2" Coax	No

Load Cases

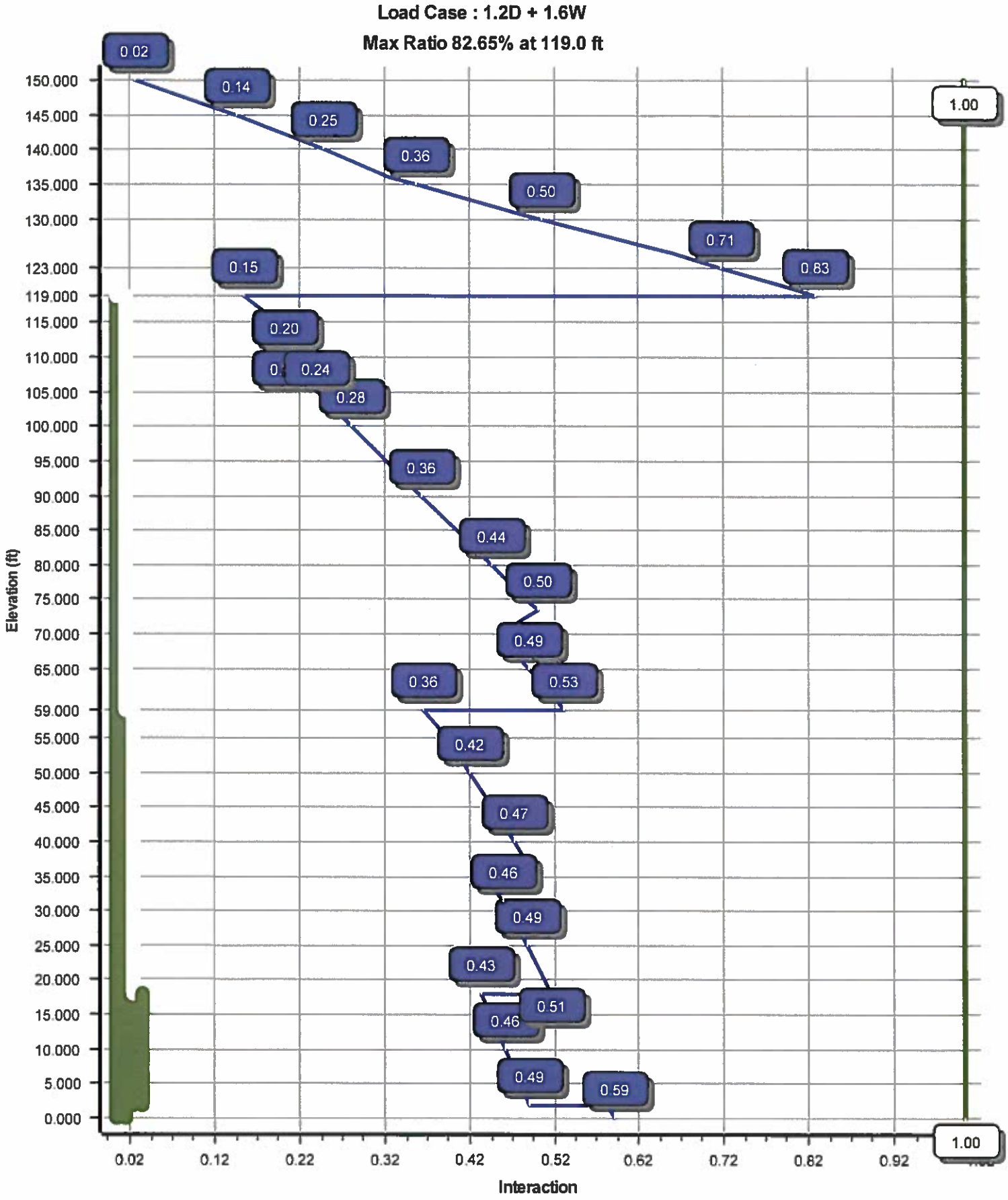
1.2D + 1.6W	101 mph with No Ice
0.9D + 1.6W	101 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3099.24	31.45	44.89
0.9D + 1.6W	3064.70	31.43	33.66
1.2D + 1.0Di + 1.0Wi	713.20	6.80	78.00
(1.2 + 0.2Sds) * DL + E ELFM	178.13	1.46	46.10
(1.2 + 0.2Sds) * DL + E EMAM	325.56	2.91	46.10
(0.9 - 0.2Sds) * DL + E ELFM	175.28	1.46	31.24
(0.9 - 0.2Sds) * DL + E EMAM	320.12	2.91	31.24
1.0D + 1.0W	707.06	7.38	37.43

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	70.00	5.157	0.721
1.0D + 1.0W	131.00	18.456	1.425
1.0D + 1.0W	131.00	18.456	1.425


Load Case : 1.2D + 1.6W
Max Ratio 82.65% at 119.0 ft
0.02
0.14
0.25
0.36
0.50
0.71
0.83
1.00
0.15
0.20
0.24
0.28
0.36
0.44
0.50
0.49
0.53
0.36
0.42
0.47
0.46
0.49
0.43
0.51
0.46
0.49
0.59
1.00
150.000
145.000
140.000
135.000
130.000
123.000
119.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
59.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number:	**302484**	**Code: ANSI/TIA-222-G**	
Site Name:	**Branford CT 6, CT**	**Engineering Number:OAA720088_C3_01**	**12/19/2017 4:51:06 PM**
Customer:	**VERIZON WIRELESS**		

Analysis Parameters

Location :	**NEW HAVEN County, CT**	**Height (ft) :**	**150**
Code :	**ANSI/TIA-222-G**	**Base Diameter (in) :**	**37.38**
Shape :	**12 Sides**	**Top Diameter (in) :**	**15.00**
Pole Type :	**Taper**	**Taper (in/ft) :**	**0.157**
Pole Manfacturer :	**ITT Meyer**	**Rotation (deg) :**	**0.00**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**101 mph**
Exposure Category:	**B**	**Design Wind Speed With Ice:**	**50 mph**
Topographic Category:	**1**	**Operational Wind Speed:**	**60 mph**
Crest Height:	**0 ft**	**Design Ice Thickness:**	**0.75 in**

Seismic Parameters

Analysis Method:	**Equivalent Modal Analysis & Equivalent Lateral Force Methods**				
Site Class:	**D - Stiff Soil**				
Period Based on Rayleigh Method (sec):	**2.35**				
T_L (sec):	**6**	**p:**	**1.3**	**C_s:**	**0.030**
S_s:	**0.243**	**S_1:**	**0.062**	**C_s Max:**	**0.030**
F_a:	**1.600**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.259**	**S_{d1}:**	**0.099**		

Load Cases

1.2D + 1.6W	**101 mph with No Ice**
0.9D + 1.6W	**101 mph with No Ice (Reduced DL)**
1.2D + 1.0Di + 1.0Wi	**50 mph with 0.75 in Radial Ice**
(1.2 + 0.2Sds) * DL + E ELFM	**Seismic Equivalent Lateral Forces Method**
(1.2 + 0.2Sds) * DL + E EMAM	**Seismic Equivalent Modal Analysis Method**
(0.9 - 0.2Sds) * DL + E ELFM	**Seismic (Reduced DL) Equivalent Lateral Forces Method**
(0.9 - 0.2Sds) * DL + E EMAM	**Seismic (Reduced DL) Equivalent Modal Analysis Method**
1.0D + 1.0W	**Serviceability 60 mph**

Shaft Section Properties

							Bottom						Top						
Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Dia (in)	Elev (ft)	Area (in²)	Ix (in⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in²)	Ix (in⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-12	35.670	0.3750	65		0.00	5,014	37.38	0.00	44.68	7810.1	24.57	99.68	31.79	35.67	37.93	4778.7	20.57	84.77	0.156700
2-12	42.000	0.3125	65	Slip	50.00	4,237	33.06	31.50	32.96	4514.0	26.21	105.82	26.48	73.50	26.34	2303.2	20.57	84.76	0.156700
3-12	40.000	0.2500	65	Slip	42.00	2,646	27.53	70.00	21.96	2087.3	27.37	110.14	21.26	110.00	16.92	953.9	20.65	85.07	0.156700
4-12	39.997	0.1875	65	Butt	0.00	1,475	21.26	110.00	12.73	721.9	28.25	113.43	15.00	150.00	8.94	250.5	19.29	80.00	0.156700
				Shaft Weight		13,372													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
150.00	11' Dipole	2	0.000	9.000	40.00	3.580	1.00
150.00	4' Omni	1	0.000	8.000	10.00	1.000	1.00
150.00	CCI HPA-65R-BUU-H6	3	0.000	1.000	51.00	9.660	0.69
150.00	Diplexer / Coupler	3	0.000	1.000	5.00	0.700	0.50
150.00	Ericsson RRUS 11 (Band 12) (55	3	0.000	1.000	55.00	2.520	0.67
150.00	Ericsson RRUS 32 B2	3	0.000	1.000	53.00	2.740	0.67
150.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
150.00	GPS	1	0.000	0.000	10.00	1.000	1.00
150.00	Powerwave Allgon 7020.00 Dual	6	0.000	3.000	2.20	0.400	0.50
150.00	Powerwave Allgon 7770.00	3	0.000	1.000	35.00	5.510	0.65
150.00	Powerwave LGP21401	6	0.000	1.000	14.10	1.100	0.50
150.00	Raycap DC6-48-60-18-8F ("Squid	1	0.000	1.000	31.80	1.280	1.00
150.00	Round Side Arm	3	0.000	0.000	150.00	5.200	0.67
136.00	Andrew LNX-6515DS-VTM	3	0.000	0.000	51.30	11.430	0.70
136.00	Ericsson AIR 21, 1.3 M, B2A B4	3	0.000	0.000	83.00	6.050	0.71
136.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.000	0.000	81.50	6.090	0.70
136.00	Ericsson KRY 112 144/1	3	0.000	0.000	11.00	0.410	0.50
136.00	Ericsson RRUS 11 (Band 12)	3	0.000	0.000	50.00	2.570	0.67
136.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
131.00	12" x 12" Junction Box	1	0.000	0.000	10.00	1.200	0.50
131.00	Argus LLPX310R	3	0.000	0.000	28.60	4.290	0.63
131.00	Clearwire Mount	1	0.000	0.000	560.00	8.500	1.00
131.00	DragonWave A-ANT-18G-2.5-C	1	0.000	0.000	47.60	8.430	1.00
131.00	DragonWave A-ANT-23G-1-C	1	0.000	0.000	15.00	1.610	1.00
131.00	DragonWave Horizon Compact	2	0.000	0.000	10.60	0.430	0.50
131.00	NextNet BTS-2500	3	0.000	0.000	35.00	1.820	0.50
123.00	SWR FMEC/1	1	0.000	0.000	15.00	2.500	1.00
113.00	Alcatel-Lucent RRH 2X60-1900	3	0.000	0.000	39.60	1.880	0.50
113.00	Alcatel-Lucent RRH2x40-07-L	3	0.000	0.000	52.40	1.700	0.50
113.00	Alcatel-Lucent RRH2x60 700	3	0.000	0.000	56.70	2.150	0.50
113.00	Commscope JAHH-65B-R3B	6	0.000	0.000	60.60	9.110	0.69
113.00	Nokia B66a RRH4x45 (UHIE)	3	0.000	0.000	56.80	2.540	0.67
113.00	RFS APL866513-12T0-00	2	0.000	0.000	15.70	4.050	0.76
113.00	RFS APL868013-12T0	4	0.000	0.000	6.30	3.610	0.73
113.00	RFS DB-T1-6Z-8AB-0Z	2	0.000	0.000	44.00	4.800	0.67
113.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
70.00	4' Std. Dish	1	0.000	0.000	188.00	20.910	1.00
Totals	Num Loadings:37	97			7779.30		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	150.00	1	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility

0.00	150.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	150.00	1	1 5/8" Coax	1.98	0.82	N	0.00	Y	Other
0.00	150.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	150.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Verizon Wireless
0.00	150.00	1	3" Conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	150.00	5	7/8" Coax	1.09	0.33	N	0.00	N	Other
0.00	136.00	1	1 1/4" Hybriflex	1.54	1.00	N	0.00	Y	T-Mobile
123.00	136.00	12	1 5/8" Coax	1.98	0.82	N	5.94	Y	T-Mobile
0.00	131.00	4	1/2" Coax	0.63	0.15	N	0.00	Y	Clearwire Corporation
0.00	131.00	2	2" Conduit	2.38	3.65	N	0.00	Y	Clearwire Corporation
0.00	131.00	6	5/16" Coax	0.31	0.05	N	0.00	Y	Clearwire Corporation
0.00	123.00	4	#18 Dywidag bars	2.50	0.00	N	8.00	Y	
0.00	123.00	3	1/2" Coax	0.63	0.15	N	0.00	N	ALMA Radio
65.00	123.00	12	1 5/8" Coax	1.98	0.82	N	1.94	Y	T-Mobile
0.00	113.00	6	1 1/4" Coax	1.55	0.63	N	0.00	N	Verizon Wireless
0.00	113.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	Y	Verizon Wireless
0.00	70.00	1	0.28" RG-6	0.28	0.03	N	0.00	Y	Other
0.00	65.00	4	#18 Dywidag Bars	2.50	0.00	N	8.00	Y	
0.00	65.00	12	1 5/8" Coax	1.98	0.82	N	0.00	Y	T-Mobile
0.00	19.75	4	PL 1" x 5"	1.00	0.00	N	0.00	Y	

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	119.0	4	SOL #18 All Thread	75	6.37	6" T Bracket	30.0	3.50	5/8" A36 U-Bolt	Yes
0.00	59.00	4	SOL #18 All Thread	75	3.44	6" Angle Bracket	30.0	3.50	5/8" A36 U-Bolt	No
2.00	18.00	2	PL PL 4" x 1"	50	0.00	5/8" Hollo Bolt	12.0	3.00	5/8" Hollo Bolt	No
2.00	18.00	2	PL PL 5" x 1"	50	0.00	5/8" Hollo Bolt	12.0	3.00	5/8" Hollo Bolt	No

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	37.380	44.684	7,810.1	24.57	99.68	77.9	403.6	0.0	0.0	32.00	9,896	0.0
2.00	Reinf Bottom Reinf	0.3750	37.067	44.305	7,613.3	24.34	98.84	78.2	396.8	0.0	302.8	32.00	9,772	217.6
5.00		0.3750	36.597	43.737	7,324.4	24.01	97.59	78.5	386.6	0.0	449.4	50.00	12,78	510.1
10.00		0.3750	35.813	42.791	6,859.3	23.45	95.50	79.1	370.0	0.0	736.1	50.00	12,34	850.2
15.00		0.3750	35.030	41.845	6,414.3	22.89	93.41	79.8	353.7	0.0	720.0	50.00	11,92	850.2
18.00	Reinf. Top Reinf.	0.3750	34.559	41.278	6,156.8	22.55	92.16	80.1	344.2	0.0	424.3	50.00	11,66	510.1
20.00		0.3750	34.246	40.899	5,989.0	22.33	91.32	80.4	337.8	0.0	279.6	32.00	8,691	217.6
25.00		0.3750	33.463	39.953	5,583.0	21.77	89.23	81.0	322.3	0.0	687.8	32.00	8,402	544.0
30.00		0.3750	32.679	39.007	5,195.7	21.21	87.14	81.6	307.1	0.0	671.7	32.00	8,118	544.0
31.50	Bot - Section 2	0.3750	32.443	38.723	5,082.8	21.04	86.52	81.8	302.7	0.0	198.8	32.00	8,033	163.6
35.00		0.3750	31.896	38.061	4,826.7	20.65	85.05	81.9	292.3	0.0	845.7	32.00	8,061	380.4
35.67	Top - Section 1	0.3125	32.416	32.304	4,249.4	25.65	103.73	76.7	253.3	0.0	160.4	32.00	8,023	72.9
40.00		0.3125	31.737	31.621	3,985.6	25.07	101.56	77.4	242.6	0.0	470.9	32.00	7,783	471.1
45.00		0.3125	30.954	30.833	3,694.9	24.40	99.05	78.1	230.6	0.0	531.3	32.00	7,509	544.0
50.00		0.3125	30.170	30.044	3,418.6	23.73	96.54	78.8	218.9	0.0	517.9	32.00	7,241	544.0
55.00		0.3125	29.387	29.256	3,156.5	23.05	94.04	79.6	207.5	0.0	504.5	32.00	6,978	544.0
59.00	Reinf. Top	0.3125	28.760	28.625	2,956.7	22.52	92.03	80.2	198.6	0.0	393.9	32.00	6,989	489.6
60.00		0.3125	28.603	28.467	2,908.1	22.38	91.53	80.3	196.4	0.0	97.1	16.00	3,838	54.4
65.00		0.3125	27.819	27.679	2,673.1	21.71	89.02	81.0	185.6	0.0	477.6	16.00	3,702	272.0
70.00		0.3125	27.036	26.891	2,451.2	21.04	86.52	81.8	175.1	0.0	464.2	16.00	3,569	272.0
70.00	Bot - Section 3	0.3125	27.035	26.890	2,451.0	21.04	86.51	81.8	175.1	0.0	0.3	16.00	3,568	0.2
73.50	Top - Section 2	0.2500	26.987	21.523	1,963.9	26.78	107.95	75.5	140.6	0.0	575.9	16.00	3,560	190.4
75.00		0.2500	26.753	21.335	1,912.7	26.53	107.01	75.8	138.1	0.0	109.1	16.00	3,521	81.4
80.00		0.2500	25.969	20.704	1,748.0	25.69	103.88	76.7	130.0	0.0	357.6	16.00	3,391	272.0
85.00		0.2500	25.186	20.073	1,593.1	24.85	100.74	77.6	122.2	0.0	346.9	16.00	3,263	272.0
90.00		0.2500	24.402	19.442	1,447.6	24.01	97.61	78.5	114.6	0.0	336.2	16.00	3,138	272.0
95.00		0.2500	23.619	18.812	1,311.2	23.17	94.47	79.4	107.2	0.0	325.4	16.00	3,015	272.0
100.0		0.2500	22.835	18.181	1,183.7	22.33	91.34	80.4	100.1	0.0	314.7	16.00	2,895	272.0
105.0		0.2500	22.052	17.550	1,064.7	21.49	88.21	81.3	93.3	0.0	304.0	16.00	2,777	272.0
110.0		0.2500	21.268	16.919	954.0	20.65	85.07	81.9	86.7	0.0	293.2	16.00	2,661	272.0
110.0	Top - Section 3	0.2500	21.267	16.919	953.9	20.65	85.07	81.9	86.7	0.0	0.2	16.00	2,661	0.2
110.0	Bot - Section 4	0.1875	21.267	12.727	721.9	28.25	113.43	73.9	65.6	0.0		16.00	2,661	
113.0		0.1875	20.798	12.444	674.7	27.58	110.92	74.6	62.7	0.0	128.3	16.00	2,593	163.0
115.0		0.1875	20.485	12.254	644.4	27.13	109.25	75.1	60.8	0.0	84.0	16.00	2,548	108.8
119.0	Reinf. Top	0.1875	19.858	11.876	586.5	26.23	105.91	76.1	57.1	0.0	164.2	16.00	2,661	0.2
120.0		0.1875	19.701	11.781	572.6	26.01	105.07	76.3	56.1	0.0	40.3			
123.0		0.1875	19.231	11.497	532.2	25.34	102.56	77.1	53.5	0.0	118.8			
125.0		0.1875	18.918	11.308	506.4	24.89	100.89	77.6	51.7	0.0	77.6			
130.0		0.1875	18.134	10.835	445.4	23.77	96.71	78.8	47.5	0.0	188.4			
131.0		0.1875	17.977	10.741	433.9	23.55	95.88	79.0	46.6	0.0	36.7			
135.0		0.1875	17.351	10.362	389.6	22.65	92.54	80.0	43.4	0.0	143.6			
136.0		0.1875	17.194	10.268	379.0	22.43	91.70	80.3	42.6	0.0	35.1			
140.0		0.1875	16.567	9.889	338.6	21.53	88.36	81.2	39.5	0.0	137.2			
145.0		0.1875	15.784	9.416	292.3	20.41	84.18	81.9	35.8	0.0	164.2			
150.0		0.1875	15.000	8.943	250.5	19.29	80.00	81.9	32.3	0.0	156.2			
											13,372.3			10,500.

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number:OAA720088_C3_01 12/19/2017 4:51:07 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W 101 mph with No Ice 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		117.8	0.0					0.0	0.0	117.8	0.0	0.0	0.0
2.00	Reinf Bottom	292.6	363.4					55.6	362.5	348.2	725.9	0.0	0.0
5.00		461.2	539.3					83.3	764.3	544.6	1,303.5	0.0	0.0
10.00		566.6	883.3					138.9	1,273.8	705.5	2,157.1	0.0	0.0
15.00		445.4	864.0					138.9	1,273.8	584.2	2,137.8	0.0	0.0
18.00	Reinf. Top Reinf.	274.0	509.1					83.3	764.3	357.3	1,273.4	0.0	0.0
20.00		376.7	335.6					55.6	362.5	432.2	698.1	0.0	0.0
25.00		529.4	825.4					138.9	906.3	668.3	1,731.7	0.0	0.0
30.00		339.7	806.1					138.9	906.3	478.6	1,712.4	0.0	0.0
31.50	Bot - Section 2	265.1	238.6					41.9	272.5	307.0	511.1	0.0	0.0
35.00		223.1	1,014.8					98.6	633.8	321.7	1,648.7	0.0	0.0
35.67	Top - Section 1	271.1	192.5					19.1	121.4	290.2	313.9	0.0	0.0
40.00		509.1	565.1					124.4	784.9	633.5	1,350.0	0.0	0.0
45.00		550.1	637.5					146.0	906.3	696.1	1,543.9	0.0	0.0
50.00		552.6	621.4					148.4	906.3	700.9	1,527.8	0.0	0.0
55.00		497.9	605.4					150.5	906.3	648.4	1,511.7	0.0	0.0
59.00	Reinf. Top	276.4	472.7					121.8	790.4	398.3	1,263.0	0.0	0.0
60.00		330.7	116.6					30.6	116.0	361.3	232.6	0.0	0.0
65.00		549.2	573.2					154.3	579.9	703.6	1,153.1	0.0	0.0
70.00	Appurtenance(s)	274.0	557.1	814.8	0.0	0.0	225.6	115.4	579.9	1,204.2	1,362.6	0.0	0.0
70.00	Bot - Section 3	194.0	0.4					0.1	0.4	194.1	0.8	0.0	0.0
73.50	Top - Section 2	276.3	691.1					81.7	405.8	358.1	1,097.0	0.0	0.0
75.00		356.2	131.0					35.2	173.5	391.5	304.5	0.0	0.0
80.00		544.1	429.1					119.2	579.8	663.2	1,008.9	0.0	0.0
85.00		536.9	416.3					121.3	579.8	658.2	996.0	0.0	0.0
90.00		528.8	403.4					123.4	579.8	652.1	983.2	0.0	0.0
95.00		519.8	390.5					125.3	579.8	645.1	970.3	0.0	0.0
100.00		509.9	377.6					127.2	579.8	637.2	957.4	0.0	0.0
105.00		499.4	364.8					129.1	579.8	628.4	944.5	0.0	0.0
110.00		247.1	351.9					130.8	579.8	377.9	931.6	0.0	0.0
110.00	Top - Section 3	145.4	0.2					0.1	0.4	145.5	0.6	0.0	0.0
113.00	Appurtenance(s)	241.0	154.0	3,318.1	0.0	0.0	2,249.6	79.2	347.5	3,638.3	2,751.1	0.0	0.0
115.00		284.2	100.8					53.2	216.6	337.4	317.4	0.0	0.0
119.00	Reinf. Top	235.0	197.1					107.2	172.3	342.2	369.4	0.0	0.0
120.00		184.4	48.3					27.0	43.0	211.4	91.3	0.0	0.0
123.00	Appurtenance(s)	228.5	142.6	114.4	0.0	0.0	18.0	81.3	129.1	424.2	289.6	0.0	0.0
125.00		312.4	93.1					34.0	85.0	346.4	178.1	0.0	0.0
130.00		265.3	226.0					85.4	212.4	350.7	438.4	0.0	0.0
131.00	Appurtenance(s)	214.7	44.1	1,213.1	0.0	0.0	1,013.5	17.1	42.5	1,445.0	1,100.0	0.0	0.0
135.00		213.3	172.3					68.8	130.6	282.0	302.9	0.0	0.0
136.00	Appurtenance(s)	179.9	42.1	2,779.1	0.0	0.0	1,896.5	17.2	32.6	2,976.2	1,971.2	0.0	0.0
140.00		304.4	164.6					0.0	78.5	304.4	243.1	0.0	0.0
145.00		326.6	197.1					0.0	98.2	326.6	295.2	0.0	0.0
150.00	Appurtenance(s)	160.1	187.4	4,524.7	0.0	4,516.5	3,931.9	0.0	98.2	4,684.8	4,217.5	0.0	0.0
								Totals:		31,522.8	44,918.5	0.00	0.00

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number:OAA720088_C3_01 12/19/2017 4:51:15 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W 101 mph with No Ice 25 Iterations

Gust Response Factor :1.10 Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-44.89	-31.45	0.00	-3,099.24	0.00	3,099.24	3,133.66	1,566.83	4,776.46	2,358.91	0.00	0.00	0.588
2.00	-44.10	-31.19	0.00	-3,036.35	0.00	3,036.35	3,116.86	1,558.43	4,710.21	2,326.20	0.02	-0.10	0.580
5.00	-42.70	-30.77	0.00	-2,942.78	0.00	2,942.78	3,091.35	1,545.67	4,611.19	2,277.30	0.13	-0.25	0.478
10.00	-40.44	-30.20	0.00	-2,788.92	0.00	2,788.92	3,047.99	1,524.00	4,447.17	2,196.29	0.50	-0.45	0.460
15.00	-38.23	-29.70	0.00	-2,637.93	0.00	2,637.93	3,003.60	1,501.80	4,284.50	2,115.95	1.08	-0.65	0.442
18.00	-36.91	-29.39	0.00	-2,548.84	0.00	2,548.84	2,976.47	1,488.23	4,187.58	2,068.09	1.52	-0.77	0.432
18.00	-36.91	-29.39	0.00	-2,548.84	0.00	2,548.84	2,976.47	1,488.23	4,187.58	2,068.09	1.52	-0.77	0.514
20.00	-36.14	-29.05	0.00	-2,490.06	0.00	2,490.06	2,958.17	1,479.08	4,123.27	2,036.33	1.87	-0.85	0.506
25.00	-34.30	-28.49	0.00	-2,344.81	0.00	2,344.81	2,911.70	1,455.85	3,963.58	1,957.46	2.88	-1.08	0.485
30.00	-32.52	-28.06	0.00	-2,202.36	0.00	2,202.36	2,864.18	1,432.09	3,805.55	1,879.42	4.14	-1.32	0.464
31.50	-31.96	-27.81	0.00	-2,160.18	0.00	2,160.18	2,849.69	1,424.85	3,758.37	1,856.12	4.57	-1.39	0.458
35.00	-30.28	-27.49	0.00	-2,062.95	0.00	2,062.95	2,805.48	1,402.74	3,636.10	1,795.73	5.65	-1.55	0.436
35.67	-29.92	-27.25	0.00	-2,044.53	0.00	2,044.53	2,231.05	1,115.53	2,951.35	1,457.56	5.86	-1.58	0.493
40.00	-28.49	-26.68	0.00	-1,926.52	0.00	1,926.52	2,201.95	1,100.98	2,850.70	1,407.85	7.38	-1.77	0.470
45.00	-26.87	-26.04	0.00	-1,793.10	0.00	1,793.10	2,167.39	1,083.69	2,735.30	1,350.86	9.36	-1.99	0.444
50.00	-25.28	-25.38	0.00	-1,662.89	0.00	1,662.89	2,131.78	1,065.89	2,620.87	1,294.35	11.56	-2.21	0.418
55.00	-23.71	-24.75	0.00	-1,535.99	0.00	1,535.99	2,095.13	1,047.56	2,507.52	1,238.37	13.99	-2.42	0.392
59.00	-22.42	-24.34	0.00	-1,436.99	0.00	1,436.99	2,065.06	1,032.53	2,417.69	1,194.00	16.10	-2.59	0.363
59.00	-22.42	-24.34	0.00	-1,436.99	0.00	1,436.99	2,065.06	1,032.53	2,417.69	1,194.00	16.10	-2.59	0.529
60.00	-22.14	-24.03	0.00	-1,412.65	0.00	1,412.65	2,057.44	1,028.72	2,395.35	1,182.97	16.65	-2.63	0.522
65.00	-20.90	-23.37	0.00	-1,292.50	0.00	1,292.50	2,018.71	1,009.36	2,284.46	1,128.21	19.56	-2.92	0.487
70.00	-19.56	-22.15	0.00	-1,175.63	0.00	1,175.63	1,978.94	989.47	2,174.96	1,074.13	22.76	-3.19	0.452
70.00	-19.53	-21.98	0.00	-1,175.56	0.00	1,175.56	1,978.92	989.46	2,174.88	1,074.09	22.76	-3.19	0.452
73.50	-18.40	-21.61	0.00	-1,098.62	0.00	1,098.62	1,462.63	731.31	1,612.04	796.13	25.17	-3.38	0.499
75.00	-18.06	-21.25	0.00	-1,066.28	0.00	1,066.28	1,455.06	727.53	1,589.51	785.00	26.25	-3.46	0.486
80.00	-17.00	-20.60	0.00	-960.02	0.00	960.02	1,429.11	714.55	1,514.58	747.99	30.01	-3.73	0.444
85.00	-15.97	-19.95	0.00	-857.01	0.00	857.01	1,402.12	701.06	1,440.27	711.29	34.05	-3.98	0.402
90.00	-14.96	-19.29	0.00	-757.27	0.00	757.27	1,374.09	687.04	1,366.68	674.95	38.34	-4.21	0.361
95.00	-13.97	-18.62	0.00	-660.83	0.00	660.83	1,345.02	672.51	1,293.93	639.02	42.87	-4.43	0.320
100.00	-13.01	-17.96	0.00	-567.72	0.00	567.72	1,314.91	657.46	1,222.10	603.55	47.62	-4.64	0.279
105.00	-12.06	-17.29	0.00	-477.95	0.00	477.95	1,283.76	641.88	1,151.31	568.59	52.57	-4.82	0.239
110.00	-11.15	-16.85	0.00	-391.51	0.00	391.51	1,247.14	623.57	1,077.81	532.29	57.70	-4.98	0.199
110.00	-11.14	-16.71	0.00	-391.46	0.00	391.46	1,247.10	623.55	1,077.76	532.26	57.70	-4.98	0.199
110.00	-11.14	-16.71	0.00	-391.46	0.00	391.46	846.53	423.27	735.94	363.45	57.70	-4.98	0.237
113.00	-8.71	-12.86	0.00	-341.38	0.00	341.38	835.87	417.94	710.34	350.81	60.85	-5.06	0.206
115.00	-8.40	-12.50	0.00	-315.67	0.00	315.67	828.55	414.27	693.31	342.40	62.99	-5.12	0.191
119.00	-8.05	-12.14	0.00	-265.66	0.00	265.66	813.40	406.70	659.43	325.67	67.32	-5.23	0.152
119.00	-8.05	-12.14	0.00	-265.66	0.00	265.66	813.40	406.70	659.43	325.67	67.32	-5.23	0.827
120.00	-7.94	-11.95	0.00	-253.53	0.00	253.53	809.51	404.76	651.00	321.50	68.42	-5.25	0.799
123.00	-7.64	-11.53	0.00	-217.69	0.00	217.69	797.59	398.80	625.81	309.06	71.82	-5.60	0.715
125.00	-7.42	-11.22	0.00	-194.62	0.00	194.62	789.44	394.72	609.12	300.82	74.21	-5.82	0.657
130.00	-6.97	-10.85	0.00	-138.54	0.00	138.54	768.32	384.16	567.78	280.41	80.56	-6.29	0.504
131.00	-6.01	-9.32	0.00	-127.68	0.00	127.68	763.98	381.99	559.59	276.36	81.88	-6.37	0.470
135.00	-5.71	-9.02	0.00	-90.41	0.00	90.41	746.17	373.08	527.09	260.31	87.34	-6.66	0.356
136.00	-4.09	-5.84	0.00	-81.39	0.00	81.39	741.61	370.81	519.04	256.33	88.74	-6.72	0.323
140.00	-3.86	-5.53	0.00	-58.02	0.00	58.02	722.98	361.49	487.14	240.58	94.45	-6.93	0.247
145.00	-3.60	-5.17	0.00	-30.39	0.00	30.39	694.06	347.03	445.03	219.79	101.80	-7.12	0.144
150.00	0.00	-4.68	0.00	-4.52	0.00	4.52	659.19	329.60	401.19	198.13	109.29	-7.20	0.023

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 25 Iterations

Gust Response Factor :1.10 — Wind Importance Factor :1.00
Dead Load Factor :0.90
Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		117.8	0.0					0.0	0.0	117.8	0.0	0.0	0.0
2.00	Reinf Bottom	292.6	272.5					55.6	271.9	348.2	544.4	0.0	0.0
5.00		461.2	404.4					83.3	573.2	544.6	977.7	0.0	0.0
10.00		566.6	662.5					138.9	955.3	705.5	1,617.8	0.0	0.0
15.00		445.4	648.0					138.9	955.3	584.2	1,603.3	0.0	0.0
18.00	Reinf. Top Reinf.	274.0	381.8					83.3	573.2	357.3	955.1	0.0	0.0
20.00		376.7	251.7					55.6	271.9	432.2	523.6	0.0	0.0
25.00		529.4	619.0					138.9	679.8	668.3	1,298.8	0.0	0.0
30.00		339.7	604.5					138.9	679.8	478.6	1,284.3	0.0	0.0
31.50	Bot - Section 2	265.1	178.9					41.9	204.4	307.0	383.3	0.0	0.0
35.00		223.1	761.1					98.6	475.4	321.7	1,236.5	0.0	0.0
35.67	Top - Section 1	271.1	144.4					19.1	91.1	290.2	235.4	0.0	0.0
40.00		509.1	423.8					124.4	588.7	633.5	1,012.5	0.0	0.0
45.00		550.1	478.2					146.0	679.8	696.1	1,157.9	0.0	0.0
50.00		552.6	466.1					148.4	679.8	700.9	1,145.8	0.0	0.0
55.00		497.9	454.0					150.5	679.8	648.4	1,133.8	0.0	0.0
59.00	Reinf. Top	276.4	354.5					121.8	592.8	398.3	947.3	0.0	0.0
60.00		330.7	87.4					30.6	87.0	361.3	174.4	0.0	0.0
65.00		549.2	429.9					154.3	435.0	703.6	864.8	0.0	0.0
70.00	Appurtenance(s)	274.0	417.8	814.8	0.0	0.0	169.2	115.4	435.0	1,204.2	1,022.0	0.0	0.0
70.00	Bot - Section 3	194.0	0.3					0.1	0.3	194.1	0.6	0.0	0.0
73.50	Top - Section 2	276.3	518.3					81.7	304.4	358.1	822.7	0.0	0.0
75.00		356.2	98.2					35.2	130.2	391.5	228.4	0.0	0.0
80.00		544.1	321.9					119.2	434.8	663.2	756.7	0.0	0.0
85.00		536.9	312.2					121.3	434.8	658.2	747.0	0.0	0.0
90.00		528.8	302.5					123.4	434.8	652.1	737.4	0.0	0.0
95.00		519.8	292.9					125.3	434.8	645.1	727.7	0.0	0.0
100.00		509.9	283.2					127.2	434.8	637.2	718.0	0.0	0.0
105.00		499.4	273.6					129.1	434.8	628.4	708.4	0.0	0.0
110.00		247.1	263.9					130.8	434.8	377.9	698.7	0.0	0.0
110.00	Top - Section 3	145.4	0.2					0.1	0.3	145.5	0.5	0.0	0.0
113.00	Appurtenance(s)	241.0	115.5	3,318.1	0.0	0.0	1,687.2	79.2	260.6	3,638.3	2,063.3	0.0	0.0
115.00		284.2	75.6					53.2	162.4	337.4	238.1	0.0	0.0
119.00	Reinf. Top	235.0	147.8					107.2	129.2	342.2	277.0	0.0	0.0
120.00		184.4	36.2					27.0	32.3	211.4	68.5	0.0	0.0
123.00	Appurtenance(s)	228.5	106.9	114.4	0.0	0.0	13.5	81.3	96.8	424.2	217.2	0.0	0.0
125.00		312.4	69.8					34.0	63.7	346.4	133.6	0.0	0.0
130.00		265.3	169.5					85.4	159.3	350.7	328.8	0.0	0.0
131.00	Appurtenance(s)	214.7	33.0	1,213.1	0.0	0.0	760.1	17.1	31.9	1,445.0	825.0	0.0	0.0
135.00		213.3	129.3					68.8	97.9	282.0	227.2	0.0	0.0
136.00	Appurtenance(s)	179.9	31.6	2,779.1	0.0	0.0	1,422.4	17.2	24.5	2,976.2	1,478.4	0.0	0.0
140.00		304.4	123.5					0.0	58.9	304.4	182.4	0.0	0.0
145.00		326.6	147.8					0.0	73.6	326.6	221.4	0.0	0.0
150.00	Appurtenance(s)	160.1	140.6	4,524.7	0.0	4,516.5	2,948.9	0.0	73.6	4,684.8	3,163.1	0.0	0.0
									Totals:	31,522.8	33,688.8	0.00	0.00

Load Case: 0.9D + 1.6W — 101 mph with No Ice (Reduced DL) — 25 Iterations

Gust Response Factor :1.10 — Wind Importance Factor :1.00
Dead Load Factor :0.90
Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-33.66	-31.43	0.00	-3,064.70	0.00	3,064.70	3,133.66	1,566.83	4,776.46	2,358.91	0.00	0.00	0.580
2.00	-33.05	-31.16	0.00	-3,001.83	0.00	3,001.83	3,116.86	1,558.43	4,710.21	2,326.20	0.02	-0.10	0.572
5.00	-31.98	-30.71	0.00	-2,908.36	0.00	2,908.36	3,091.35	1,545.67	4,611.19	2,277.30	0.13	-0.24	0.470
10.00	-30.26	-30.10	0.00	-2,754.84	0.00	2,754.84	3,047.99	1,524.00	4,447.17	2,196.29	0.49	-0.44	0.453
15.00	-28.58	-29.58	0.00	-2,604.36	0.00	2,604.36	3,003.60	1,501.80	4,284.50	2,115.95	1.06	-0.64	0.435
18.00	-27.58	-29.25	0.00	-2,515.64	0.00	2,515.64	2,976.47	1,488.23	4,187.58	2,068.09	1.51	-0.76	0.425
18.00	-27.58	-29.25	0.00	-2,515.64	0.00	2,515.64	2,976.47	1,488.23	4,187.58	2,068.09	1.51	-0.76	0.506
20.00	-26.99	-28.89	0.00	-2,457.13	0.00	2,457.13	2,958.17	1,479.08	4,123.27	2,036.33	1.84	-0.84	0.498
25.00	-25.59	-28.30	0.00	-2,312.69	0.00	2,312.69	2,911.70	1,455.85	3,963.58	1,957.46	2.85	-1.07	0.477
30.00	-24.24	-27.86	0.00	-2,171.19	0.00	2,171.19	2,864.18	1,432.09	3,805.55	1,879.42	4.09	-1.30	0.456
31.50	-23.81	-27.59	0.00	-2,129.31	0.00	2,129.31	2,849.69	1,424.85	3,758.37	1,856.12	4.51	-1.37	0.450
35.00	-22.54	-27.27	0.00	-2,032.84	0.00	2,032.84	2,805.48	1,402.74	3,636.10	1,795.73	5.58	-1.53	0.429
35.67	-22.26	-27.02	0.00	-2,014.56	0.00	2,014.56	2,231.05	1,115.53	2,951.35	1,457.56	5.79	-1.56	0.484
40.00	-21.17	-26.43	0.00	-1,897.57	0.00	1,897.57	2,201.95	1,100.98	2,850.70	1,407.85	7.29	-1.74	0.462
45.00	-19.94	-25.78	0.00	-1,765.40	0.00	1,765.40	2,167.39	1,083.69	2,735.30	1,350.86	9.24	-1.97	0.436
50.00	-18.72	-25.10	0.00	-1,636.52	0.00	1,636.52	2,131.78	1,065.89	2,620.87	1,294.35	11.41	-2.18	0.410
55.00	-17.54	-24.47	0.00	-1,511.00	0.00	1,511.00	2,095.13	1,047.56	2,507.52	1,238.37	13.81	-2.39	0.385
59.00	-16.57	-24.06	0.00	-1,413.12	0.00	1,413.12	2,065.06	1,032.53	2,417.69	1,194.00	15.89	-2.56	0.356
59.00	-16.57	-24.06	0.00	-1,413.12	0.00	1,413.12	2,065.06	1,032.53	2,417.69	1,194.00	15.89	-2.56	0.519
60.00	-16.34	-23.74	0.00	-1,389.06	0.00	1,389.06	2,057.44	1,028.72	2,395.35	1,182.97	16.43	-2.60	0.512
65.00	-15.40	-23.07	0.00	-1,270.38	0.00	1,270.38	2,018.71	1,009.36	2,284.46	1,128.21	19.30	-2.88	0.477
70.00	-14.39	-21.84	0.00	-1,155.05	0.00	1,155.05	1,978.94	989.47	2,174.96	1,074.13	22.45	-3.15	0.443
70.00	-14.37	-21.67	0.00	-1,154.98	0.00	1,154.98	1,978.92	989.46	2,174.88	1,074.09	22.46	-3.15	0.443
73.50	-13.52	-21.30	0.00	-1,079.12	0.00	1,079.12	1,462.63	731.31	1,612.04	796.13	24.83	-3.33	0.488
75.00	-13.25	-20.94	0.00	-1,047.24	0.00	1,047.24	1,455.06	727.53	1,589.51	785.00	25.89	-3.41	0.476
80.00	-12.45	-20.28	0.00	-942.56	0.00	942.56	1,429.11	714.55	1,514.58	747.99	29.60	-3.67	0.434
85.00	-11.66	-19.63	0.00	-841.15	0.00	841.15	1,402.12	701.06	1,440.27	711.29	33.58	-3.92	0.393
90.00	-10.90	-18.97	0.00	-743.03	0.00	743.03	1,374.09	687.04	1,366.68	674.95	37.80	-4.15	0.353
95.00	-10.15	-18.30	0.00	-648.20	0.00	648.20	1,345.02	672.51	1,293.93	639.02	42.26	-4.36	0.312
100.00	-9.43	-17.64	0.00	-556.68	0.00	556.68	1,314.91	657.46	1,222.10	603.55	46.94	-4.56	0.272
105.00	-8.73	-16.99	0.00	-468.45	0.00	468.45	1,283.76	641.88	1,151.31	568.59	51.81	-4.74	0.233
110.00	-8.04	-16.56	0.00	-383.52	0.00	383.52	1,247.14	623.57	1,077.81	532.29	56.85	-4.90	0.194
110.00	-8.04	-16.42	0.00	-383.46	0.00	383.46	1,247.10	623.55	1,077.76	532.26	56.86	-4.90	0.194
110.00	-8.04	-16.42	0.00	-383.46	0.00	383.46	846.53	423.27	735.94	363.45	56.86	-4.90	0.231
113.00	-6.28	-12.63	0.00	-334.25	0.00	334.25	835.87	417.94	710.34	350.81	59.96	-4.98	0.201
115.00	-6.06	-12.28	0.00	-308.99	0.00	308.99	828.55	414.27	693.31	342.40	62.06	-5.04	0.186
119.00	-5.80	-11.92	0.00	-259.87	0.00	259.87	813.40	406.70	659.43	325.67	66.32	-5.14	0.148
119.00	-5.80	-11.92	0.00	-259.87	0.00	259.87	813.40	406.70	659.43	325.67	66.32	-5.14	0.806
120.00	-5.71	-11.72	0.00	-247.95	0.00	247.95	809.51	404.76	651.00	321.50	67.40	-5.16	0.779
123.00	-5.48	-11.31	0.00	-212.79	0.00	212.79	797.59	398.80	625.81	309.06	70.75	-5.51	0.696
125.00	-5.31	-10.98	0.00	-190.17	0.00	190.17	789.44	394.72	609.12	300.82	73.10	-5.72	0.640
130.00	-4.98	-10.62	0.00	-135.27	0.00	135.27	768.32	384.16	567.78	280.41	79.34	-6.18	0.490
131.00	-4.28	-9.11	0.00	-124.65	0.00	124.65	763.98	381.99	559.59	276.36	80.64	-6.26	0.457
135.00	-4.06	-8.82	0.00	-88.21	0.00	88.21	746.17	373.08	527.09	260.31	86.00	-6.54	0.345
136.00	-2.92	-5.70	0.00	-79.40	0.00	79.40	741.61	370.81	519.04	256.33	87.37	-6.60	0.314
140.00	-2.76	-5.38	0.00	-56.61	0.00	56.61	722.98	361.49	487.14	240.58	92.98	-6.81	0.239
145.00	-2.57	-5.04	0.00	-29.70	0.00	29.70	694.06	347.03	445.03	219.79	100.20	-6.99	0.139
150.00	0.00	-4.68	0.00	-4.52	0.00	4.52	659.19	329.60	401.19	198.13	107.56	-7.07	0.023

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 24 Iterations

Gust Response Factor :1.10 | Ice Dead Load Factor :1.00 | Wind Importance Factor :1.00
Dead Load Factor :1.20 | Ice Importance Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		19.0	0.0					0.0	0.0	19.0	0.0	0.0	0.0
2.00	Reinf Bottom	47.5	467.8					18.9	520.5	66.4	988.3	0.0	0.0
5.00		75.4	715.2					29.2	1,035.3	104.6	1,750.6	0.0	0.0
10.00		93.0	1,194.0					49.6	1,765.3	142.6	2,959.4	0.0	0.0
15.00		73.4	1,184.7					50.2	1,794.5	123.6	2,979.2	0.0	0.0
18.00	Reinf. Top Reinf.	45.3	704.6					30.3	1,086.7	75.6	1,791.3	0.0	0.0
20.00		62.4	466.6					20.3	579.2	82.7	1,045.9	0.0	0.0
25.00		87.9	1,151.5					51.0	1,426.4	138.9	2,578.0	0.0	0.0
30.00		56.5	1,131.6					51.2	1,438.6	107.8	2,570.2	0.0	0.0
31.50	Bot - Section 2	44.2	336.9					15.6	434.6	59.8	771.5	0.0	0.0
35.00		37.2	1,246.0					37.1	1,014.3	74.3	2,260.3	0.0	0.0
35.67	Top - Section 1	45.3	236.9					7.3	194.9	52.6	431.8	0.0	0.0
40.00		85.3	848.6					47.9	1,263.1	133.1	2,111.7	0.0	0.0
45.00		92.4	961.0					57.3	1,466.1	149.7	2,427.1	0.0	0.0
50.00		93.1	940.8					59.4	1,473.4	152.5	2,414.2	0.0	0.0
55.00		84.1	920.1					61.3	1,480.1	145.4	2,400.2	0.0	0.0
59.00	Reinf. Top	46.8	721.5					50.3	1,253.8	97.1	1,975.3	0.0	0.0
60.00		56.2	178.7					12.7	232.4	68.9	411.2	0.0	0.0
65.00		93.5	877.5					64.7	1,165.5	158.2	2,043.0	0.0	0.0
70.00	Appurtenance(s)	46.7	855.7	141.8	0.0	0.0	361.4	48.4	1,081.9	236.9	2,299.0	0.0	0.0
70.00	Bot - Section 3	33.1	0.6					0.0	0.7	33.2	1.3	0.0	0.0
73.50	Top - Section 2	47.2	901.1					34.6	747.3	81.8	1,648.5	0.0	0.0
75.00		61.1	220.4					14.9	320.2	76.0	540.5	0.0	0.0
80.00		93.5	720.9					50.6	1,072.1	144.1	1,792.9	0.0	0.0
85.00		92.6	701.6					51.7	1,075.7	144.3	1,777.3	0.0	0.0
90.00		91.6	682.1					52.7	1,079.2	144.3	1,761.2	0.0	0.0
95.00		90.5	662.4					53.6	1,082.5	144.1	1,744.9	0.0	0.0
100.00		89.2	642.6					54.5	1,085.6	143.7	1,728.2	0.0	0.0
105.00		87.8	622.6					55.4	1,088.6	143.2	1,711.2	0.0	0.0
110.00		43.5	602.4					56.3	1,091.5	99.9	1,694.0	0.0	0.0
110.00	Top - Section 3	25.7	0.4					0.0	0.7	25.8	1.1	0.0	0.0
113.00	Appurtenance(s)	42.7	301.7	680.3	0.0	0.0	6,247.4	34.2	655.5	757.1	7,204.6	0.0	0.0
115.00		50.6	198.3					23.0	403.9	73.5	602.2	0.0	0.0
119.00	Reinf. Top	41.9	386.9					46.3	548.1	88.2	935.0	0.0	0.0
120.00		33.0	95.5					11.7	137.2	44.7	232.7	0.0	0.0
123.00	Appurtenance(s)	41.0	281.4	33.2	0.0	0.0	44.5	35.2	412.2	109.4	738.0	0.0	0.0
125.00		56.3	184.5					13.2	236.2	69.5	420.6	0.0	0.0
130.00		47.9	446.3					33.2	591.7	81.1	1,038.1	0.0	0.0
131.00	Appurtenance(s)	39.1	87.9	266.9	0.0	0.0	2,100.6	6.7	118.6	312.6	2,307.0	0.0	0.0
135.00		38.9	342.4					26.9	338.3	65.8	680.7	0.0	0.0
136.00	Appurtenance(s)	38.0	84.4	556.5	0.0	0.0	4,333.1	6.8	84.7	601.3	4,502.1	0.0	0.0
140.00		67.3	328.3					0.0	105.1	67.3	433.4	0.0	0.0
145.00		72.8	393.6					0.0	131.6	72.8	525.2	0.0	0.0
150.00	Appurtenance(s)	35.9	375.8	1,050.3	0.0	1,665.8	7,264.0	0.0	131.8	1,086.2	7,771.6	0.0	0.0
								Totals:		6,799.59	78,000.2	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 24 Iterations

Gust Response Factor :1.10 — Ice Dead Load Factor :1.00 — Wind Importance Factor :1.00
Dead Load Factor :1.20 — Ice Importance Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-78.00	-6.80	0.00	-713.20	0.00	713.20	3,133.66	1,566.83	4,776.46	2,358.91	0.00	0.00	0.148
2.00	-77.01	-6.77	0.00	-699.61	0.00	699.61	3,116.86	1,558.43	4,710.21	2,326.20	0.01	-0.02	0.146
5.00	-75.25	-6.71	0.00	-679.31	0.00	679.31	3,091.35	1,545.67	4,611.19	2,277.30	0.03	-0.06	0.120
10.00	-72.29	-6.63	0.00	-645.73	0.00	645.73	3,047.99	1,524.00	4,447.17	2,196.29	0.11	-0.10	0.116
15.00	-69.30	-6.54	0.00	-612.60	0.00	612.60	3,003.60	1,501.80	4,284.50	2,115.95	0.25	-0.15	0.112
18.00	-67.51	-6.49	0.00	-592.98	0.00	592.98	2,976.47	1,488.23	4,187.58	2,068.09	0.35	-0.18	0.109
18.00	-67.51	-6.49	0.00	-592.98	0.00	592.98	2,976.47	1,488.23	4,187.58	2,068.09	0.35	-0.18	0.131
20.00	-66.46	-6.45	0.00	-580.00	0.00	580.00	2,958.17	1,479.08	4,123.27	2,036.33	0.43	-0.20	0.129
25.00	-63.88	-6.36	0.00	-547.77	0.00	547.77	2,911.70	1,455.85	3,963.58	1,957.46	0.67	-0.25	0.124
30.00	-61.30	-6.27	0.00	-515.99	0.00	515.99	2,864.18	1,432.09	3,805.55	1,879.42	0.96	-0.31	0.119
31.50	-60.53	-6.24	0.00	-506.56	0.00	506.56	2,849.69	1,424.85	3,758.37	1,856.12	1.06	-0.32	0.117
35.00	-58.27	-6.17	0.00	-484.75	0.00	484.75	2,805.48	1,402.74	3,636.10	1,795.73	1.31	-0.36	0.112
35.67	-57.83	-6.14	0.00	-480.61	0.00	480.61	2,231.05	1,115.53	2,951.35	1,457.56	1.36	-0.37	0.127
40.00	-55.72	-6.05	0.00	-454.00	0.00	454.00	2,201.95	1,100.98	2,850.70	1,407.85	1.71	-0.41	0.122
45.00	-53.29	-5.93	0.00	-423.78	0.00	423.78	2,167.39	1,083.69	2,735.30	1,350.86	2.17	-0.46	0.116
50.00	-50.87	-5.80	0.00	-394.15	0.00	394.15	2,131.78	1,065.89	2,620.87	1,294.35	2.69	-0.52	0.109
55.00	-48.47	-5.67	0.00	-365.16	0.00	365.16	2,095.13	1,047.56	2,507.52	1,238.37	3.26	-0.57	0.103
59.00	-46.49	-5.57	0.00	-342.49	0.00	342.49	2,065.06	1,032.53	2,417.69	1,194.00	3.75	-0.61	0.096
59.00	-46.49	-5.57	0.00	-342.49	0.00	342.49	2,065.06	1,032.53	2,417.69	1,194.00	3.75	-0.61	0.139
60.00	-46.07	-5.53	0.00	-336.92	0.00	336.92	2,057.44	1,028.72	2,395.35	1,182.97	3.88	-0.62	0.137
65.00	-44.03	-5.40	0.00	-309.28	0.00	309.28	2,018.71	1,009.36	2,284.46	1,128.21	4.56	-0.68	0.129
70.00	-41.73	-5.16	0.00	-282.29	0.00	282.29	1,978.94	989.47	2,174.96	1,074.13	5.31	-0.75	0.120
70.00	-41.73	-5.14	0.00	-282.27	0.00	282.27	1,978.92	989.46	2,174.88	1,074.09	5.31	-0.75	0.120
73.50	-40.08	-5.06	0.00	-264.28	0.00	264.28	1,462.63	731.31	1,612.04	796.13	5.88	-0.80	0.134
75.00	-39.53	-5.00	0.00	-256.71	0.00	256.71	1,455.06	727.53	1,589.51	785.00	6.13	-0.82	0.131
80.00	-37.74	-4.87	0.00	-231.69	0.00	231.69	1,429.11	714.55	1,514.58	747.99	7.02	-0.88	0.120
85.00	-35.96	-4.74	0.00	-207.32	0.00	207.32	1,402.12	701.06	1,440.27	711.29	7.98	-0.94	0.110
90.00	-34.19	-4.60	0.00	-183.62	0.00	183.62	1,374.09	687.04	1,366.68	674.95	8.99	-1.00	0.100
95.00	-32.45	-4.45	0.00	-160.63	0.00	160.63	1,345.02	672.51	1,293.93	639.02	10.07	-1.05	0.089
100.00	-30.72	-4.30	0.00	-138.38	0.00	138.38	1,314.91	657.46	1,222.10	603.55	11.19	-1.10	0.079
105.00	-29.01	-4.15	0.00	-116.87	0.00	116.87	1,283.76	641.88	1,151.31	568.59	12.37	-1.14	0.069
110.00	-27.32	-4.02	0.00	-96.15	0.00	96.15	1,247.14	623.57	1,077.81	532.29	13.59	-1.18	0.059
110.00	-27.31	-4.00	0.00	-96.13	0.00	96.13	1,247.10	623.55	1,077.76	532.26	13.59	-1.18	0.059
110.00	-27.31	-4.00	0.00	-96.13	0.00	96.13	846.53	423.27	735.94	363.45	13.59	-1.18	0.071
113.00	-20.13	-3.10	0.00	-84.15	0.00	84.15	835.87	417.94	710.34	350.81	14.34	-1.20	0.060
115.00	-19.52	-3.02	0.00	-77.95	0.00	77.95	828.55	414.27	693.31	342.40	14.85	-1.22	0.056
119.00	-18.59	-2.92	0.00	-65.87	0.00	65.87	813.40	406.70	659.43	325.67	15.88	-1.24	0.046
119.00	-18.59	-2.92	0.00	-65.87	0.00	65.87	813.40	406.70	659.43	325.67	15.88	-1.24	0.225
120.00	-18.36	-2.88	0.00	-62.96	0.00	62.96	809.51	404.76	651.00	321.50	16.14	-1.25	0.219
123.00	-17.62	-2.78	0.00	-54.31	0.00	54.31	797.59	398.80	625.81	309.06	16.96	-1.34	0.198
125.00	-17.19	-2.72	0.00	-48.76	0.00	48.76	789.44	394.72	609.12	300.82	17.53	-1.39	0.184
130.00	-16.16	-2.64	0.00	-35.14	0.00	35.14	768.32	384.16	567.78	280.41	19.05	-1.51	0.146
131.00	-13.86	-2.27	0.00	-32.50	0.00	32.50	763.98	381.99	559.59	276.36	19.37	-1.53	0.136
135.00	-13.18	-2.20	0.00	-23.41	0.00	23.41	746.17	373.08	527.09	260.31	20.69	-1.61	0.108
136.00	-8.69	-1.48	0.00	-21.21	0.00	21.21	741.61	370.81	519.04	256.33	21.03	-1.62	0.094
140.00	-8.26	-1.41	0.00	-15.30	0.00	15.30	722.98	361.49	487.14	240.58	22.41	-1.68	0.075
145.00	-7.74	-1.32	0.00	-8.27	0.00	8.27	694.06	347.03	445.03	219.79	24.19	-1.73	0.049
150.00	0.00	-1.09	0.00	-1.67	0.00	1.67	659.19	329.60	401.19	198.13	26.02	-1.75	0.008

Site Number: 302484 Code: ANSI/TIA-222-G

Site Name: Branford CT 6, CT Engineering Number:OAA720088_C3_01 12/19/2017 4:51:32 PM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		26.0	0.0					0.0	0.0	26.0	0.0	0.0	0.0
2.00	Reinf Bottom	64.5	302.8					20.6	302.1	85.2	604.9	0.0	0.0
5.00		101.7	449.4					30.9	636.9	132.7	1,086.3	0.0	0.0
10.00		125.0	736.1					51.6	1,061.5	176.5	1,797.6	0.0	0.0
15.00		98.2	720.0					51.6	1,061.5	149.8	1,781.5	0.0	0.0
18.00	Reinf. Top Reinf.	60.4	424.3					30.9	636.9	91.4	1,061.2	0.0	0.0
20.00		83.1	279.6					20.6	302.1	103.7	581.7	0.0	0.0
25.00		116.8	687.8					51.6	755.3	168.3	1,443.1	0.0	0.0
30.00		74.9	671.7					51.6	755.3	126.5	1,427.0	0.0	0.0
31.50	Bot - Section 2	58.5	198.8					15.6	227.1	74.0	425.9	0.0	0.0
35.00		49.2	845.7					36.6	528.2	85.8	1,373.9	0.0	0.0
35.67	Top - Section 1	59.8	160.4					7.1	101.2	66.9	261.6	0.0	0.0
40.00		112.3	470.9					46.2	654.1	158.5	1,125.0	0.0	0.0
45.00		121.3	531.3					54.2	755.3	175.5	1,286.6	0.0	0.0
50.00		121.9	517.9					55.1	755.3	177.0	1,273.2	0.0	0.0
55.00		109.8	504.5					55.9	755.3	165.7	1,259.7	0.0	0.0
59.00	Reinf. Top	61.0	393.9					45.2	658.6	106.2	1,052.5	0.0	0.0
60.00		72.9	97.1					11.4	96.7	84.3	193.8	0.0	0.0
65.00		121.1	477.6					57.3	483.3	178.4	960.9	0.0	0.0
70.00	Appurtenance(s)	60.4	464.2	179.7	0.0	0.0	188.0	37.2	483.3	277.4	1,135.5	0.0	0.0
70.00	Bot - Section 3	42.8	0.3					0.0	0.3	42.8	0.6	0.0	0.0
73.50	Top - Section 2	60.9	575.9					26.3	338.2	87.3	914.1	0.0	0.0
75.00		78.6	109.1					11.3	144.6	89.9	253.8	0.0	0.0
80.00		120.0	357.6					38.1	483.1	158.1	840.8	0.0	0.0
85.00		118.4	346.9					38.5	483.1	157.0	830.0	0.0	0.0
90.00		116.6	336.2					38.9	483.1	155.6	819.3	0.0	0.0
95.00		114.6	325.4					39.3	483.1	154.0	808.6	0.0	0.0
100.00		112.5	314.7					39.7	483.1	152.2	797.8	0.0	0.0
105.00		110.1	304.0					40.0	483.1	150.2	787.1	0.0	0.0
110.00		54.5	293.2					40.4	483.1	94.9	776.4	0.0	0.0
110.00	Top - Section 3	32.1	0.2					0.0	0.3	32.1	0.5	0.0	0.0
113.00	Appurtenance(s)	53.1	128.3	731.9	0.0	0.0	1,874.7	24.4	289.6	809.4	2,292.6	0.0	0.0
115.00		62.7	84.0					16.3	180.5	79.0	264.5	0.0	0.0
119.00	Reinf. Top	51.8	164.2					32.8	143.6	84.6	307.8	0.0	0.0
120.00		40.7	40.3					8.2	35.8	48.9	76.1	0.0	0.0
123.00	Appurtenance(s)	50.4	118.8	25.2	0.0	0.0	15.0	24.8	107.5	100.4	241.4	0.0	0.0
125.00		68.9	77.6					12.0	70.8	80.9	148.4	0.0	0.0
130.00		58.5	188.4					30.3	177.0	88.8	365.4	0.0	0.0
131.00	Appurtenance(s)	47.4	36.7	267.6	0.0	0.0	844.6	6.1	35.4	321.0	916.7	0.0	0.0
135.00		47.0	143.6					24.5	108.8	71.6	252.4	0.0	0.0
136.00	Appurtenance(s)	39.7	35.1	613.0	0.0	0.0	1,580.4	6.2	27.2	658.8	1,642.7	0.0	0.0
140.00		67.1	137.2					0.0	65.4	67.1	202.6	0.0	0.0
145.00		72.0	164.2					0.0	81.8	72.0	246.0	0.0	0.0
150.00	Appurtenance(s)	35.3	156.2	998.0	0.0	996.2	3,276.6	0.0	81.8	1,033.3	3,514.6	0.0	0.0
								Totals:		7,399.72	37,432.1	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 24 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-37.43	-7.38	0.00	-707.06	0.00	707.06	3,133.66	1,566.83	4,776.46	2,358.91	0.00	0.00	0.139
2.00	-36.82	-7.31	0.00	-692.30	0.00	692.30	3,116.86	1,558.43	4,710.21	2,326.20	0.00	-0.02	0.137
5.00	-35.73	-7.21	0.00	-670.36	0.00	670.36	3,091.35	1,545.67	4,611.19	2,277.30	0.03	-0.06	0.113
10.00	-33.93	-7.05	0.00	-634.33	0.00	634.33	3,047.99	1,524.00	4,447.17	2,196.29	0.11	-0.10	0.108
15.00	-32.14	-6.92	0.00	-599.07	0.00	599.07	3,003.60	1,501.80	4,284.50	2,115.95	0.25	-0.15	0.104
18.00	-31.08	-6.84	0.00	-578.31	0.00	578.31	2,976.47	1,488.23	4,187.58	2,068.09	0.35	-0.18	0.101
18.00	-31.08	-6.84	0.00	-578.31	0.00	578.31	2,976.47	1,488.23	4,187.58	2,068.09	0.35	-0.18	0.121
20.00	-30.49	-6.75	0.00	-564.63	0.00	564.63	2,958.17	1,479.08	4,123.27	2,036.33	0.42	-0.19	0.119
25.00	-29.04	-6.60	0.00	-530.87	0.00	530.87	2,911.70	1,455.85	3,963.58	1,957.46	0.66	-0.25	0.114
30.00	-27.61	-6.49	0.00	-497.85	0.00	497.85	2,864.18	1,432.09	3,805.55	1,879.42	0.94	-0.30	0.109
31.50	-27.19	-6.42	0.00	-488.10	0.00	488.10	2,849.69	1,424.85	3,758.37	1,856.12	1.04	-0.31	0.107
35.00	-25.81	-6.34	0.00	-465.64	0.00	465.64	2,805.48	1,402.74	3,636.10	1,795.73	1.28	-0.35	0.102
35.67	-25.55	-6.28	0.00	-461.39	0.00	461.39	2,231.05	1,115.53	2,951.35	1,457.56	1.33	-0.36	0.115
40.00	-24.42	-6.14	0.00	-434.19	0.00	434.19	2,201.95	1,100.98	2,850.70	1,407.85	1.68	-0.40	0.110
45.00	-23.13	-5.97	0.00	-403.51	0.00	403.51	2,167.39	1,083.69	2,735.30	1,350.86	2.13	-0.45	0.104
50.00	-21.85	-5.80	0.00	-373.66	0.00	373.66	2,131.78	1,065.89	2,620.87	1,294.35	2.62	-0.50	0.098
55.00	-20.59	-5.64	0.00	-344.65	0.00	344.65	2,095.13	1,047.56	2,507.52	1,238.37	3.18	-0.55	0.091
59.00	-19.53	-5.53	0.00	-322.09	0.00	322.09	2,065.06	1,032.53	2,417.69	1,194.00	3.65	-0.59	0.085
59.00	-19.53	-5.53	0.00	-322.09	0.00	322.09	2,065.06	1,032.53	2,417.69	1,194.00	3.65	-0.59	0.123
60.00	-19.34	-5.46	0.00	-316.56	0.00	316.56	2,057.44	1,028.72	2,395.35	1,182.97	3.78	-0.60	0.121
65.00	-18.37	-5.29	0.00	-289.27	0.00	289.27	2,018.71	1,009.36	2,284.46	1,128.21	4.43	-0.66	0.113
70.00	-17.24	-5.01	0.00	-262.83	0.00	262.83	1,978.94	989.47	2,174.96	1,074.13	5.16	-0.72	0.105
70.00	-17.24	-4.97	0.00	-262.81	0.00	262.81	1,978.92	989.46	2,174.88	1,074.09	5.16	-0.72	0.105
73.50	-16.32	-4.88	0.00	-245.41	0.00	245.41	1,462.63	731.31	1,612.04	796.13	5.70	-0.76	0.116
75.00	-16.07	-4.80	0.00	-238.11	0.00	238.11	1,455.06	727.53	1,589.51	785.00	5.94	-0.78	0.113
80.00	-15.22	-4.64	0.00	-214.12	0.00	214.12	1,429.11	714.55	1,514.58	747.99	6.79	-0.84	0.103
85.00	-14.39	-4.49	0.00	-190.91	0.00	190.91	1,402.12	701.06	1,440.27	711.29	7.70	-0.90	0.094
90.00	-13.57	-4.33	0.00	-168.48	0.00	168.48	1,374.09	687.04	1,366.68	674.95	8.67	-0.95	0.084
95.00	-12.76	-4.17	0.00	-146.83	0.00	146.83	1,345.02	672.51	1,293.93	639.02	9.69	-1.00	0.075
100.00	-11.96	-4.02	0.00	-125.96	0.00	125.96	1,314.91	657.46	1,222.10	603.55	10.76	-1.04	0.065
105.00	-11.18	-3.86	0.00	-105.89	0.00	105.89	1,283.76	641.88	1,151.31	568.59	11.87	-1.08	0.056
110.00	-10.40	-3.75	0.00	-86.60	0.00	86.60	1,247.14	623.57	1,077.81	532.29	13.03	-1.12	0.047
110.00	-10.40	-3.72	0.00	-86.58	0.00	86.58	1,247.10	623.55	1,077.76	532.26	13.03	-1.12	0.047
110.00	-10.40	-3.72	0.00	-86.58	0.00	86.58	846.53	423.27	735.94	363.45	13.03	-1.12	0.056
113.00	-8.12	-2.87	0.00	-75.43	0.00	75.43	835.87	417.94	710.34	350.81	13.74	-1.14	0.049
115.00	-7.86	-2.79	0.00	-69.69	0.00	69.69	828.55	414.27	693.31	342.40	14.22	-1.15	0.045
119.00	-7.55	-2.70	0.00	-58.55	0.00	58.55	813.40	406.70	659.43	325.67	15.19	-1.17	0.036
119.00	-7.55	-2.70	0.00	-58.55	0.00	58.55	813.40	406.70	659.43	325.67	15.19	-1.17	0.189
120.00	-7.48	-2.65	0.00	-55.85	0.00	55.85	809.51	404.76	651.00	321.50	15.44	-1.18	0.183
123.00	-7.23	-2.56	0.00	-47.89	0.00	47.89	797.59	398.80	625.81	309.06	16.20	-1.25	0.164
125.00	-7.08	-2.48	0.00	-42.78	0.00	42.78	789.44	394.72	609.12	300.82	16.74	-1.30	0.151
130.00	-6.72	-2.39	0.00	-30.37	0.00	30.37	768.32	384.16	567.78	280.41	18.16	-1.41	0.117
131.00	-5.81	-2.05	0.00	-27.98	0.00	27.98	763.98	381.99	559.59	276.36	18.46	-1.42	0.109
135.00	-5.56	-1.98	0.00	-19.78	0.00	19.78	746.17	373.08	527.09	260.31	19.68	-1.49	0.083
136.00	-3.93	-1.28	0.00	-17.80	0.00	17.80	741.61	370.81	519.04	256.33	19.99	-1.50	0.075
140.00	-3.73	-1.21	0.00	-12.69	0.00	12.69	722.98	361.49	487.14	240.58	21.27	-1.55	0.058
145.00	-3.48	-1.13	0.00	-6.65	0.00	6.65	694.06	347.03	445.03	219.79	22.91	-1.59	0.035
150.00	0.00	-1.03	0.00	-1.00	0.00	1.00	659.19	329.60	401.19	198.13	24.59	-1.61	0.005

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.24
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coeffiecient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.26
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.35
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.92
Total Unfactored Dead Load:	37.43 k
Seismic Base Shear (E):	1.46 k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
43	147.50	238	3,545	0.019	27	298
42	142.50	246	3,430	0.018	26	308
41	138.00	203	2,655	0.014	20	254
40	135.50	62	788	0.004	6	78
39	133.00	252	3,081	0.016	24	316
38	130.50	72	849	0.004	7	90
37	127.50	365	4,112	0.022	32	457
36	124.00	148	1,583	0.008	12	186
35	121.50	226	2,322	0.012	18	283
34	119.50	76	756	0.004	6	95
33	117.00	308	2,936	0.015	23	385
32	114.00	265	2,400	0.013	18	331
31	111.50	418	3,634	0.019	28	523
30	110.00	1	4	0.000	0	1
29	107.50	776	6,292	0.033	48	972
28	102.50	787	5,821	0.031	45	985
27	97.50	798	5,359	0.028	41	999
26	92.50	809	4,908	0.026	38	1,012
25	87.50	819	4,468	0.024	34	1,026
24	82.50	830	4,042	0.021	31	1,039
23	77.50	841	3,631	0.019	28	1,052
22	74.25	254	1,009	0.005	8	318
21	71.75	914	3,404	0.018	26	1,144

20	70.00	1	2	0.000	0	1
19	67.50	948	3,136	0.017	24	1,186
18	62.50	961	2,743	0.014	21	1,203
17	59.50	194	503	0.003	4	243
16	57.00	1,053	2,517	0.013	19	1,318
15	52.50	1,260	2,571	0.014	20	1,577
14	47.50	1,273	2,143	0.011	17	1,594
13	42.50	1,287	1,749	0.009	13	1,611
12	37.83	1,125	1,223	0.006	9	1,408
11	35.33	262	249	0.001	2	327
10	33.25	1,374	1,165	0.006	9	1,720
9	30.75	426	311	0.002	2	533
8	27.50	1,427	839	0.004	6	1,786
7	22.50	1,443	577	0.003	4	1,807
6	19.00	582	168	0.001	1	728
5	16.50	1,061	234	0.001	2	1,328
4	12.50	1,781	230	0.001	2	2,230
3	7.50	1,798	87	0.000	1	2,250
2	3.50	1,086	12	0.000	0	1,360
1	1.00	605	1	0.000	0	757
Powerwave Allgon 702	150.00	13	203	0.001	2	17
Diplexer / Coupler	150.00	15	231	0.001	2	19
GPS	150.00	10	154	0.001	1	13
4' Omni	150.00	10	154	0.001	1	13
Powerwave LGP21401	150.00	85	1,302	0.007	10	106
Raycap DC6-48-60-18-	150.00	32	489	0.003	4	40
Ericsson RRUS 11 (Ba	150.00	165	2,539	0.013	20	207
Ericsson RRUS 32 B2	150.00	159	2,446	0.013	19	199
11' Dipole	150.00	80	1,231	0.006	9	100
Round Side Arm	150.00	450	6,924	0.037	53	563
Powerwave Allgon 777	150.00	105	1,616	0.009	12	131
CCI HPA-65R-BUU-H6	150.00	153	2,354	0.012	18	192
Flat Platform w/ Han	150.00	2,000	30,772	0.162	237	2,504
Ericsson KRY 112 144	136.00	33	420	0.002	3	41
Ericsson RRUS 11 (Ba	136.00	150	1,911	0.010	15	188
Ericsson AIR 21, 1.3	136.00	249	3,173	0.017	24	312
Ericsson AIR 21, 1.3	136.00	244	3,116	0.016	24	306
Round T-Arm	136.00	750	9,557	0.050	74	939
Andrew LNX-6515DS-VT	136.00	154	1,961	0.010	15	193
DragonWave Horizon C	131.00	21	251	0.001	2	27
12" x 12" Junction B	131.00	10	119	0.001	1	13
DragonWave A-ANT-23G	131.00	15	178	0.001	1	19
NextNet BTS-2500	131.00	105	1,245	0.007	10	131
Argus LLPX310R	131.00	86	1,017	0.005	8	107
DragonWave A-ANT-18G	131.00	48	564	0.003	4	60
Clearwire Mount	131.00	560	6,640	0.035	51	701
SWR FMEC/1	123.00	15	158	0.001	1	19
Alcatel-Lucent RRH2x	113.00	157	1,402	0.007	11	197
Alcatel-Lucent RRH 2	113.00	119	1,060	0.006	8	149
Alcatel-Lucent RRH2x	113.00	170	1,518	0.008	12	213
Nokia B66a RRH4x45 (	113.00	170	1,520	0.008	12	213
RFS APL868013-12T0	113.00	25	225	0.001	2	32
RFS APL866513-12T0-0	113.00	31	280	0.001	2	39
RFS DB-T1-6Z-8AB-0Z	113.00	88	785	0.004	6	110
Commscope JAHH-65B-R	113.00	364	3,244	0.017	25	455
Round T-Arm	113.00	750	6,691	0.035	52	939
4' Std. Dish	70.00	188	667	0.004	5	235
		37,432	189,603	1.000	1,460	46,859

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
43	147.50	238	3,545	0.019	27	202
42	142.50	246	3,430	0.018	26	209
41	138.00	203	2,655	0.014	20	172
40	135.50	62	788	0.004	6	53
39	133.00	252	3,081	0.016	24	214
38	130.50	72	849	0.004	7	61
37	127.50	365	4,112	0.022	32	310
36	124.00	148	1,583	0.008	12	126
35	121.50	226	2,322	0.012	18	192
34	119.50	76	756	0.004	6	65
33	117.00	308	2,936	0.015	23	261
32	114.00	265	2,400	0.013	18	224
31	111.50	418	3,634	0.019	28	354
30	110.00	1	4	0.000	0	0
29	107.50	776	6,292	0.033	48	658
28	102.50	787	5,821	0.031	45	668
27	97.50	798	5,359	0.028	41	677
26	92.50	809	4,908	0.026	38	686
25	87.50	819	4,468	0.024	34	695
24	82.50	830	4,042	0.021	31	704
23	77.50	841	3,631	0.019	28	713
22	74.25	254	1,009	0.005	8	215
21	71.75	914	3,404	0.018	26	775
20	70.00	1	2	0.000	0	1
19	67.50	948	3,136	0.017	24	804
18	62.50	961	2,743	0.014	21	815
17	59.50	194	503	0.003	4	164
16	57.00	1,053	2,517	0.013	19	893
15	52.50	1,260	2,571	0.014	20	1,068
14	47.50	1,273	2,143	0.011	17	1,080
13	42.50	1,287	1,749	0.009	13	1,091
12	37.83	1,125	1,223	0.006	9	954
11	35.33	262	249	0.001	2	222
10	33.25	1,374	1,165	0.006	9	1,165
9	30.75	426	311	0.002	2	361
8	27.50	1,427	839	0.004	6	1,210
7	22.50	1,443	577	0.003	4	1,224
6	19.00	582	168	0.001	1	493
5	16.50	1,061	234	0.001	2	900
4	12.50	1,781	230	0.001	2	1,511
3	7.50	1,798	87	0.000	1	1,525
2	3.50	1,086	12	0.000	0	921
1	1.00	605	1	0.000	0	513
Powerwave Allgon 702	150.00	13	203	0.001	2	11
Diplexer / Coupler	150.00	15	231	0.001	2	13
GPS	150.00	10	154	0.001	1	8
4' Omni	150.00	10	154	0.001	1	8
Powerwave LGP21401	150.00	85	1,302	0.007	10	72
Raycap DC6-48-60-18-	150.00	32	489	0.003	4	27
Ericsson RRUS 11 (Ba	150.00	165	2,539	0.013	20	140
Ericsson RRUS 32 B2	150.00	159	2,446	0.013	19	135
11' Dipole	150.00	80	1,231	0.006	9	68
Round Side Arm	150.00	450	6,924	0.037	53	382
Powerwave Allgon 777	150.00	105	1,616	0.009	12	89
CCI HPA-65R-BUU-H6	150.00	153	2,354	0.012	18	130
Flat Platform w/ Han	150.00	2,000	30,772	0.162	237	1,696
Ericsson KRY 112 144	136.00	33	420	0.002	3	28

Ericsson RRUS 11 (Ba	136.00	150	1,911	0.010	15	127
Ericsson AIR 21, 1.3	136.00	249	3,173	0.017	24	211
Ericsson AIR 21, 1.3	136.00	244	3,116	0.016	24	207
Round T-Arm	136.00	750	9,557	0.050	74	636
Andrew LNX-6515DS-VT	136.00	154	1,961	0.010	15	131
DragonWave Horizon C	131.00	21	251	0.001	2	18
12" x 12" Junction B	131.00	10	119	0.001	1	8
DragonWave A-ANT-23G	131.00	15	178	0.001	1	13
NextNet BTS-2500	131.00	105	1,245	0.007	10	89
Argus LLPX310R	131.00	86	1,017	0.005	8	73
DragonWave A-ANT-18G	131.00	48	564	0.003	4	40
Clearwire Mount	131.00	560	6,640	0.035	51	475
SWR FMEC/1	123.00	15	158	0.001	1	13
Alcatel-Lucent RRH2x	113.00	157	1,402	0.007	11	133
Alcatel-Lucent RRH 2	113.00	119	1,060	0.006	8	101
Alcatel-Lucent RRH2x	113.00	170	1,518	0.008	12	144
Nokia B66a RRH4x45 (	113.00	170	1,520	0.008	12	145
RFS APL868013-12T0	113.00	25	225	0.001	2	21
RFS APL866513-12T0-0	113.00	31	280	0.001	2	27
RFS DB-T1-6Z-8AB-0Z	113.00	88	785	0.004	6	75
Commscope JAHH-65B-R	113.00	364	3,244	0.017	25	308
Round T-Arm	113.00	750	6,691	0.035	52	636
4' Std. Dish	70.00	188	667	0.004	5	159
		37,432	189,603	1.000	1,460	31,748

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.10	-1.46	0.00	-178.13	0.00	178.13	3,133.66	1,566.83	4,776.46	2,358.91	0.00	0.00	0.042
2.00	-44.74	-1.47	0.00	-175.21	0.00	175.21	3,116.86	1,558.43	4,710.21	2,326.20	0.00	-0.01	0.041
5.00	-42.49	-1.47	0.00	-170.80	0.00	170.80	3,091.35	1,545.67	4,611.19	2,277.30	0.01	-0.01	0.034
10.00	-40.26	-1.48	0.00	-163.44	0.00	163.44	3,047.99	1,524.00	4,447.17	2,196.29	0.03	-0.03	0.033
15.00	-38.93	-1.48	0.00	-156.04	0.00	156.04	3,003.60	1,501.80	4,284.50	2,115.95	0.06	-0.04	0.032
18.00	-38.20	-1.49	0.00	-151.59	0.00	151.59	2,976.47	1,488.23	4,187.58	2,068.09	0.09	-0.04	0.031
18.00	-38.20	-1.49	0.00	-151.59	0.00	151.59	2,976.47	1,488.23	4,187.58	2,068.09	0.09	-0.04	0.037
20.00	-36.40	-1.49	0.00	-148.62	0.00	148.62	2,958.17	1,479.08	4,123.27	2,036.33	0.11	-0.05	0.037
25.00	-34.61	-1.49	0.00	-141.19	0.00	141.19	2,911.70	1,455.85	3,963.58	1,957.46	0.17	-0.06	0.035
30.00	-34.08	-1.49	0.00	-133.76	0.00	133.76	2,864.18	1,432.09	3,805.55	1,879.42	0.24	-0.08	0.034
31.50	-32.36	-1.48	0.00	-131.53	0.00	131.53	2,849.69	1,424.85	3,758.37	1,856.12	0.27	-0.08	0.034
35.00	-32.03	-1.48	0.00	-126.35	0.00	126.35	2,805.48	1,402.74	3,636.10	1,795.73	0.33	-0.09	0.033
35.67	-30.62	-1.47	0.00	-125.36	0.00	125.36	2,231.05	1,115.53	2,951.35	1,457.56	0.34	-0.09	0.037
40.00	-29.01	-1.46	0.00	-118.98	0.00	118.98	2,201.95	1,100.98	2,850.70	1,407.85	0.44	-0.11	0.035
45.00	-27.42	-1.45	0.00	-111.66	0.00	111.66	2,167.39	1,083.69	2,735.30	1,350.86	0.55	-0.12	0.033
50.00	-25.84	-1.43	0.00	-104.41	0.00	104.41	2,131.78	1,065.89	2,620.87	1,294.35	0.69	-0.13	0.032
55.00	-24.52	-1.42	0.00	-97.24	0.00	97.24	2,095.13	1,047.56	2,507.52	1,238.37	0.83	-0.15	0.030
59.00	-24.28	-1.41	0.00	-91.58	0.00	91.58	2,065.06	1,032.53	2,417.69	1,194.00	0.96	-0.16	0.028
59.00	-24.28	-1.41	0.00	-91.58	0.00	91.58	2,065.06	1,032.53	2,417.69	1,194.00	0.96	-0.16	0.041
60.00	-23.07	-1.39	0.00	-90.16	0.00	90.16	2,057.44	1,028.72	2,395.35	1,182.97	0.99	-0.16	0.040
65.00	-21.89	-1.37	0.00	-83.19	0.00	83.19	2,018.71	1,009.36	2,284.46	1,128.21	1.17	-0.18	0.038
70.00	-21.65	-1.37	0.00	-76.32	0.00	76.32	1,978.94	989.47	2,174.96	1,074.13	1.37	-0.20	0.036
70.00	-20.51	-1.34	0.00	-76.32	0.00	76.32	1,978.92	989.46	2,174.88	1,074.09	1.37	-0.20	0.035
73.50	-20.19	-1.34	0.00	-71.62	0.00	71.62	1,462.63	731.31	1,612.04	796.13	1.51	-0.21	0.040
75.00	-19.14	-1.31	0.00	-69.62	0.00	69.62	1,455.06	727.53	1,589.51	785.00	1.58	-0.21	0.039
80.00	-18.10	-1.28	0.00	-63.07	0.00	63.07	1,429.11	714.55	1,514.58	747.99	1.81	-0.23	0.036
85.00	-17.07	-1.25	0.00	-56.68	0.00	56.68	1,402.12	701.06	1,440.27	711.29	2.06	-0.25	0.033
90.00	-16.06	-1.21	0.00	-50.45	0.00	50.45	1,374.09	687.04	1,366.68	674.95	2.33	-0.26	0.030
95.00	-15.06	-1.17	0.00	-44.41	0.00	44.41	1,345.02	672.51	1,293.93	639.02	2.61	-0.28	0.027
100.00	-14.08	-1.12	0.00	-38.59	0.00	38.59	1,314.91	657.46	1,222.10	603.55	2.91	-0.29	0.024
105.00	-13.10	-1.07	0.00	-33.00	0.00	33.00	1,283.76	641.88	1,151.31	568.59	3.22	-0.30	0.021
110.00	-13.10	-1.07	0.00	-27.66	0.00	27.66	1,247.14	623.57	1,077.81	532.29	3.55	-0.31	0.019
110.00	-12.58	-1.04	0.00	-27.65	0.00	27.65	1,247.10	623.55	1,077.76	532.26	3.55	-0.31	0.019
110.00	-12.58	-1.04	0.00	-27.65	0.00	27.65	846.53	423.27	735.94	363.45	3.55	-0.31	0.023
113.00	-9.90	-0.88	0.00	-24.54	0.00	24.54	835.87	417.94	710.34	350.81	3.75	-0.32	0.020
115.00	-9.52	-0.85	0.00	-22.78	0.00	22.78	828.55	414.27	693.31	342.40	3.88	-0.33	0.018
119.00	-9.42	-0.85	0.00	-19.37	0.00	19.37	813.40	406.70	659.43	325.67	4.16	-0.33	0.016
119.00	-9.42	-0.85	0.00	-19.37	0.00	19.37	813.40	406.70	659.43	325.67	4.16	-0.33	0.071
120.00	-9.14	-0.83	0.00	-18.52	0.00	18.52	809.51	404.76	651.00	321.50	4.23	-0.33	0.069
123.00	-8.93	-0.82	0.00	-16.03	0.00	16.03	797.59	398.80	625.81	309.06	4.45	-0.36	0.063
125.00	-8.48	-0.79	0.00	-14.39	0.00	14.39	789.44	394.72	609.12	300.82	4.60	-0.38	0.059
130.00	-8.39	-0.78	0.00	-10.44	0.00	10.44	768.32	384.16	567.78	280.41	5.02	-0.41	0.048
131.00	-7.01	-0.68	0.00	-9.66	0.00	9.66	763.98	381.99	559.59	276.36	5.10	-0.42	0.044
135.00	-6.93	-0.67	0.00	-6.95	0.00	6.95	746.17	373.08	527.09	260.31	5.46	-0.44	0.036
136.00	-4.70	-0.48	0.00	-6.28	0.00	6.28	741.61	370.81	519.04	256.33	5.56	-0.44	0.031
140.00	-4.40	-0.45	0.00	-4.37	0.00	4.37	722.98	361.49	487.14	240.58	5.94	-0.46	0.024
145.00	-4.10	-0.42	0.00	-2.11	0.00	2.11	694.06	347.03	445.03	219.79	6.43	-0.47	0.016
150.00	0.00	-0.39	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	6.93	-0.48	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM **Seismic (Reduced DL) Equivalent Lateral Forces Method**

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-31.24	-1.46	0.00	-175.28	0.00	175.28	3,133.66	1,566.83	4,776.46	2,358.91	0.00	0.00	0.039
2.00	-30.31	-1.46	0.00	-172.36	0.00	172.36	3,116.86	1,558.43	4,710.21	2,326.20	0.00	-0.01	0.038
5.00	-28.79	-1.47	0.00	-167.97	0.00	167.97	3,091.35	1,545.67	4,611.19	2,277.30	0.01	-0.01	0.031
10.00	-27.28	-1.47	0.00	-160.63	0.00	160.63	3,047.99	1,524.00	4,447.17	2,196.29	0.03	-0.03	0.030
15.00	-26.38	-1.47	0.00	-153.28	0.00	153.28	3,003.60	1,501.80	4,284.50	2,115.95	0.06	-0.04	0.029
18.00	-25.88	-1.47	0.00	-148.86	0.00	148.86	2,976.47	1,488.23	4,187.58	2,068.09	0.09	-0.04	0.029
18.00	-25.88	-1.47	0.00	-148.86	0.00	148.86	2,976.47	1,488.23	4,187.58	2,068.09	0.09	-0.04	0.035
20.00	-24.66	-1.47	0.00	-145.91	0.00	145.91	2,958.17	1,479.08	4,123.27	2,036.33	0.11	-0.05	0.034
25.00	-23.45	-1.47	0.00	-138.55	0.00	138.55	2,911.70	1,455.85	3,963.58	1,957.46	0.17	-0.06	0.033
30.00	-23.09	-1.47	0.00	-131.20	0.00	131.20	2,864.18	1,432.09	3,805.55	1,879.42	0.24	-0.08	0.032
31.50	-21.92	-1.46	0.00	-128.98	0.00	128.98	2,849.69	1,424.85	3,758.37	1,856.12	0.26	-0.08	0.031
35.00	-21.70	-1.46	0.00	-123.87	0.00	123.87	2,805.48	1,402.74	3,636.10	1,795.73	0.33	-0.09	0.030
35.67	-20.75	-1.45	0.00	-122.89	0.00	122.89	2,231.05	1,115.53	2,951.35	1,457.56	0.34	-0.09	0.034
40.00	-19.65	-1.44	0.00	-116.59	0.00	116.59	2,201.95	1,100.98	2,850.70	1,407.85	0.43	-0.10	0.032
45.00	-18.57	-1.43	0.00	-109.37	0.00	109.37	2,167.39	1,083.69	2,735.30	1,350.86	0.54	-0.12	0.031
50.00	-17.51	-1.41	0.00	-102.22	0.00	102.22	2,131.78	1,065.89	2,620.87	1,294.35	0.67	-0.13	0.029
55.00	-16.61	-1.39	0.00	-95.17	0.00	95.17	2,095.13	1,047.56	2,507.52	1,238.37	0.82	-0.14	0.028
59.00	-16.45	-1.39	0.00	-89.59	0.00	89.59	2,065.06	1,032.53	2,417.69	1,194.00	0.94	-0.15	0.026
59.00	-16.45	-1.39	0.00	-89.59	0.00	89.59	2,065.06	1,032.53	2,417.69	1,194.00	0.94	-0.15	0.038
60.00	-15.63	-1.37	0.00	-88.20	0.00	88.20	2,057.44	1,028.72	2,395.35	1,182.97	0.97	-0.16	0.037
65.00	-14.83	-1.35	0.00	-81.35	0.00	81.35	2,018.71	1,009.36	2,284.46	1,128.21	1.15	-0.17	0.035
70.00	-14.67	-1.35	0.00	-74.61	0.00	74.61	1,978.94	989.47	2,174.96	1,074.13	1.34	-0.19	0.033
70.00	-13.89	-1.32	0.00	-74.61	0.00	74.61	1,978.92	989.46	2,174.88	1,074.09	1.34	-0.19	0.033
73.50	-13.68	-1.31	0.00	-69.99	0.00	69.99	1,462.63	731.31	1,612.04	796.13	1.49	-0.20	0.037
75.00	-12.96	-1.28	0.00	-68.03	0.00	68.03	1,455.06	727.53	1,589.51	785.00	1.55	-0.21	0.036
80.00	-12.26	-1.25	0.00	-61.61	0.00	61.61	1,429.11	714.55	1,514.58	747.99	1.78	-0.23	0.033
85.00	-11.56	-1.22	0.00	-55.35	0.00	55.35	1,402.12	701.06	1,440.27	711.29	2.02	-0.24	0.030
90.00	-10.88	-1.18	0.00	-49.25	0.00	49.25	1,374.09	687.04	1,366.68	674.95	2.29	-0.26	0.027
95.00	-10.20	-1.14	0.00	-43.35	0.00	43.35	1,345.02	672.51	1,293.93	639.02	2.56	-0.27	0.025
100.00	-9.53	-1.09	0.00	-37.65	0.00	37.65	1,314.91	657.46	1,222.10	603.55	2.86	-0.29	0.022
105.00	-8.88	-1.04	0.00	-32.19	0.00	32.19	1,283.76	641.88	1,151.31	568.59	3.16	-0.30	0.019
110.00	-8.88	-1.04	0.00	-26.97	0.00	26.97	1,247.14	623.57	1,077.81	532.29	3.48	-0.31	0.017
110.00	-8.52	-1.01	0.00	-26.97	0.00	26.97	1,247.10	623.55	1,077.76	532.26	3.48	-0.31	0.017
110.00	-8.52	-1.01	0.00	-26.97	0.00	26.97	846.53	423.27	735.94	363.45	3.48	-0.31	0.020
113.00	-6.71	-0.86	0.00	-23.93	0.00	23.93	835.87	417.94	710.34	350.81	3.67	-0.31	0.018
115.00	-6.45	-0.83	0.00	-22.21	0.00	22.21	828.55	414.27	693.31	342.40	3.81	-0.32	0.016
119.00	-6.38	-0.83	0.00	-18.87	0.00	18.87	813.40	406.70	659.43	325.67	4.08	-0.33	0.014
119.00	-6.38	-0.83	0.00	-18.87	0.00	18.87	813.40	406.70	659.43	325.67	4.08	-0.33	0.066
120.00	-6.19	-0.81	0.00	-18.04	0.00	18.04	809.51	404.76	651.00	321.50	4.15	-0.33	0.064
123.00	-6.05	-0.80	0.00	-15.60	0.00	15.60	797.59	398.80	625.81	309.06	4.36	-0.35	0.058
125.00	-5.74	-0.77	0.00	-14.01	0.00	14.01	789.44	394.72	609.12	300.82	4.51	-0.37	0.054
130.00	-5.68	-0.76	0.00	-10.16	0.00	10.16	768.32	384.16	567.78	280.41	4.92	-0.40	0.044
131.00	-4.75	-0.66	0.00	-9.40	0.00	9.40	763.98	381.99	559.59	276.36	5.00	-0.41	0.040
135.00	-4.70	-0.65	0.00	-6.77	0.00	6.77	746.17	373.08	527.09	260.31	5.35	-0.43	0.032
136.00	-3.19	-0.47	0.00	-6.11	0.00	6.11	741.61	370.81	519.04	256.33	5.44	-0.43	0.028
140.00	-2.98	-0.44	0.00	-4.25	0.00	4.25	722.98	361.49	487.14	240.58	5.81	-0.45	0.022
145.00	-2.78	-0.41	0.00	-2.05	0.00	2.05	694.06	347.03	445.03	219.79	6.29	-0.46	0.013
150.00	0.00	-0.39	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	6.78	-0.47	0.000

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.24
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.26
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.35
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
43	147.50	238	1.828	1.667	1.025	0.433	89	298
42	142.50	246	1.706	1.144	0.823	0.334	71	308
41	138.00	203	1.600	0.778	0.670	0.255	45	254
40	135.50	62	1.542	0.611	0.595	0.214	12	78
39	133.00	252	1.486	0.467	0.526	0.177	39	316
38	130.50	72	1.431	0.344	0.464	0.141	9	90
37	127.50	365	1.366	0.222	0.397	0.103	33	457
36	124.00	148	1.292	0.109	0.329	0.062	8	186
35	121.50	226	1.240	0.046	0.286	0.037	7	283
34	119.50	76	1.200	0.004	0.254	0.018	1	95
33	117.00	308	1.150	-0.037	0.219	-0.004	-1	385
32	114.00	265	1.092	-0.074	0.182	-0.026	-6	331
31	111.50	418	1.044	-0.096	0.154	-0.042	-15	523
30	110.00	1	1.016	-0.105	0.140	-0.050	0	1
29	107.50	776	0.971	-0.116	0.117	-0.062	-41	972
28	102.50	787	0.883	-0.121	0.081	-0.078	-53	985
27	97.50	798	0.799	-0.112	0.053	-0.083	-57	999
26	92.50	809	0.719	-0.092	0.034	-0.077	-54	1,012
25	87.50	819	0.643	-0.068	0.020	-0.061	-44	1,026
24	82.50	830	0.572	-0.043	0.012	-0.036	-26	1,039
23	77.50	841	0.505	-0.018	0.007	-0.006	-5	1,052
22	74.25	254	0.463	-0.003	0.006	0.013	3	318
21	71.75	914	0.432	0.008	0.006	0.027	22	1,144
20	70.00	1	0.412	0.014	0.006	0.036	0	1
19	67.50	948	0.383	0.023	0.007	0.047	39	1,186
18	62.50	961	0.328	0.039	0.010	0.064	53	1,203
17	59.50	194	0.297	0.046	0.012	0.071	12	243
16	57.00	1,053	0.273	0.051	0.015	0.074	68	1,318
15	52.50	1,260	0.232	0.058	0.019	0.078	85	1,577
14	47.50	1,273	0.190	0.064	0.025	0.079	87	1,594
13	42.50	1,287	0.152	0.068	0.030	0.078	87	1,611
12	37.83	1,125	0.120	0.070	0.034	0.077	75	1,408
11	35.33	262	0.105	0.071	0.037	0.076	17	327
10	33.25	1,374	0.093	0.071	0.038	0.075	89	1,720

9	30.75	426	0.079	0.072	0.040	0.074	27	533
8	27.50	1,427	0.064	0.072	0.041	0.073	90	1,786
7	22.50	1,443	0.043	0.070	0.042	0.071	89	1,807
6	19.00	582	0.030	0.068	0.041	0.069	35	728
5	16.50	1,061	0.023	0.066	0.039	0.067	62	1,328
4	12.50	1,781	0.013	0.059	0.034	0.062	96	2,230
3	7.50	1,798	0.005	0.044	0.025	0.050	78	2,250
2	3.50	1,086	0.001	0.024	0.013	0.032	30	1,360
1	1.00	605	0.000	0.008	0.004	0.012	6	757
Powerwave Allgon 702	150.00	13	1.890	1.980	1.140	0.487	6	17
Diplexer / Coupler	150.00	15	1.890	1.980	1.140	0.487	6	19
GPS	150.00	10	1.890	1.980	1.140	0.487	4	13
4' Omni	150.00	10	1.890	1.980	1.140	0.487	4	13
Powerwave LGP21401	150.00	85	1.890	1.980	1.140	0.487	36	106
Raycap DC6-48-60-18-	150.00	32	1.890	1.980	1.140	0.487	13	40
Ericsson RRUS 11 (Ba	150.00	165	1.890	1.980	1.140	0.487	70	207
Ericsson RRUS 32 B2	150.00	159	1.890	1.980	1.140	0.487	67	199
11' Dipole	150.00	80	1.890	1.980	1.140	0.487	34	100
Round Side Arm	150.00	450	1.890	1.980	1.140	0.487	190	563
Powerwave Allgon 777	150.00	105	1.890	1.980	1.140	0.487	44	131
CCI HPA-65R-BUU-H6	150.00	153	1.890	1.980	1.140	0.487	65	192
Flat Platform w/ Han	150.00	2,000	1.890	1.980	1.140	0.487	845	2,504
Ericsson KRY 112 144	136.00	33	1.554	0.642	0.609	0.222	6	41
Ericsson RRUS 11 (Ba	136.00	150	1.554	0.642	0.609	0.222	29	188
Ericsson AIR 21, 1.3	136.00	249	1.554	0.642	0.609	0.222	48	312
Ericsson AIR 21, 1.3	136.00	244	1.554	0.642	0.609	0.222	47	306
Round T-Arm	136.00	750	1.554	0.642	0.609	0.222	144	939
Andrew LNX-6515DS-VT	136.00	154	1.554	0.642	0.609	0.222	30	193
DragonWave Horizon C	131.00	21	1.442	0.367	0.476	0.148	3	27
12" x 12" Junction B	131.00	10	1.442	0.367	0.476	0.148	1	13
DragonWave A-ANT-23G	131.00	15	1.442	0.367	0.476	0.148	2	19
NextNet BTS-2500	131.00	105	1.442	0.367	0.476	0.148	13	131
Argus LLPX310R	131.00	86	1.442	0.367	0.476	0.148	11	107
DragonWave A-ANT-18G	131.00	48	1.442	0.367	0.476	0.148	6	60
Clearwire Mount	131.00	560	1.442	0.367	0.476	0.148	72	701
SWR FMEC/1	123.00	15	1.271	0.082	0.311	0.052	1	19
Alcatel-Lucent RRH2x	113.00	157	1.073	-0.084	0.170	-0.032	-4	197
Alcatel-Lucent RRH 2	113.00	119	1.073	-0.084	0.170	-0.032	-3	149
Alcatel-Lucent RRH2x	113.00	170	1.073	-0.084	0.170	-0.032	-5	213
Nokia B66a RRH4x45 (	113.00	170	1.073	-0.084	0.170	-0.032	-5	213
RFS APL868013-12T0	113.00	25	1.073	-0.084	0.170	-0.032	-1	32
RFS APL866513-12T0-0	113.00	31	1.073	-0.084	0.170	-0.032	-1	39
RFS DB-T1-6Z-8AB-0Z	113.00	88	1.073	-0.084	0.170	-0.032	-2	110
Commscope JAHH-65B-	113.00	364	1.073	-0.084	0.170	-0.032	-10	455
Round T-Arm	113.00	750	1.073	-0.084	0.170	-0.032	-21	939
4' Std. Dish	70.00	188	0.412	0.014	0.006	0.036	6	235
		37,432	83.136	37.072	30.568	11.057	2,913	46,859

Load Case (0.9 - 0.2Sds) * DL + E EMAM **Seismic (Reduced DL) Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
43	147.50	238	1.828	1.667	1.025	0.433	89	202
42	142.50	246	1.706	1.144	0.823	0.334	71	209
41	138.00	203	1.600	0.778	0.670	0.255	45	172
40	135.50	62	1.542	0.611	0.595	0.214	12	53
39	133.00	252	1.486	0.467	0.526	0.177	39	214
38	130.50	72	1.431	0.344	0.464	0.141	9	61
37	127.50	365	1.366	0.222	0.397	0.103	33	310

36	124.00	148	1.292	0.109	0.329	0.062	8	126
35	121.50	226	1.240	0.046	0.286	0.037	7	192
34	119.50	76	1.200	0.004	0.254	0.018	1	65
33	117.00	308	1.150	-0.037	0.219	-0.004	-1	261
32	114.00	265	1.092	-0.074	0.182	-0.026	-6	224
31	111.50	418	1.044	-0.096	0.154	-0.042	-15	354
30	110.00	1	1.016	-0.105	0.140	-0.050	0	0
29	107.50	776	0.971	-0.116	0.117	-0.062	-41	658
28	102.50	787	0.883	-0.121	0.081	-0.078	-53	668
27	97.50	798	0.799	-0.112	0.053	-0.083	-57	677
26	92.50	809	0.719	-0.092	0.034	-0.077	-54	686
25	87.50	819	0.643	-0.068	0.020	-0.061	-44	695
24	82.50	830	0.572	-0.043	0.012	-0.036	-26	704
23	77.50	841	0.505	-0.018	0.007	-0.006	-5	713
22	74.25	254	0.463	-0.003	0.006	0.013	3	215
21	71.75	914	0.432	0.008	0.006	0.027	22	775
20	70.00	1	0.412	0.014	0.006	0.036	0	1
19	67.50	948	0.383	0.023	0.007	0.047	39	804
18	62.50	961	0.328	0.039	0.010	0.064	53	815
17	59.50	194	0.297	0.046	0.012	0.071	12	164
16	57.00	1,053	0.273	0.051	0.015	0.074	68	893
15	52.50	1,260	0.232	0.058	0.019	0.078	85	1,068
14	47.50	1,273	0.190	0.064	0.025	0.079	87	1,080
13	42.50	1,287	0.152	0.068	0.030	0.078	87	1,091
12	37.83	1,125	0.120	0.070	0.034	0.077	75	954
11	35.33	262	0.105	0.071	0.037	0.076	17	222
10	33.25	1,374	0.093	0.071	0.038	0.075	89	1,165
9	30.75	426	0.079	0.072	0.040	0.074	27	361
8	27.50	1,427	0.064	0.072	0.041	0.073	90	1,210
7	22.50	1,443	0.043	0.070	0.042	0.071	89	1,224
6	19.00	582	0.030	0.068	0.041	0.069	35	493
5	16.50	1,061	0.023	0.066	0.039	0.067	62	900
4	12.50	1,781	0.013	0.059	0.034	0.062	96	1,511
3	7.50	1,798	0.005	0.044	0.025	0.050	78	1,525
2	3.50	1,086	0.001	0.024	0.013	0.032	30	921
1	1.00	605	0.000	0.008	0.004	0.012	6	513
Powerwave Allgon 702	150.00	13	1.890	1.980	1.140	0.487	6	11
Diplexer / Coupler	150.00	15	1.890	1.980	1.140	0.487	6	13
GPS	150.00	10	1.890	1.980	1.140	0.487	4	8
4' Omni	150.00	10	1.890	1.980	1.140	0.487	4	8
Powerwave LGP21401	150.00	85	1.890	1.980	1.140	0.487	36	72
Raycap DC6-48-60-18-	150.00	32	1.890	1.980	1.140	0.487	13	27
Ericsson RRUS 11 (Ba	150.00	165	1.890	1.980	1.140	0.487	70	140
Ericsson RRUS 32 B2	150.00	159	1.890	1.980	1.140	0.487	67	135
11' Dipole	150.00	80	1.890	1.980	1.140	0.487	34	68
Round Side Arm	150.00	450	1.890	1.980	1.140	0.487	190	382
Powerwave Allgon 777	150.00	105	1.890	1.980	1.140	0.487	44	89
CCI HPA-65R-BUU-H6	150.00	153	1.890	1.980	1.140	0.487	65	130
Flat Platform w/ Han	150.00	2,000	1.890	1.980	1.140	0.487	845	1,696
Ericsson KRY 112 144	136.00	33	1.554	0.642	0.609	0.222	6	28
Ericsson RRUS 11 (Ba	136.00	150	1.554	0.642	0.609	0.222	29	127
Ericsson AIR 21, 1.3	136.00	249	1.554	0.642	0.609	0.222	48	211
Ericsson AIR 21, 1.3	136.00	244	1.554	0.642	0.609	0.222	47	207
Round T-Arm	136.00	750	1.554	0.642	0.609	0.222	144	636
Andrew LNX-6515DS-VT	136.00	154	1.554	0.642	0.609	0.222	30	131
DragonWave Horizon C	131.00	21	1.442	0.367	0.476	0.148	3	18
12" x 12" Junction B	131.00	10	1.442	0.367	0.476	0.148	1	8
DragonWave A-ANT-23G	131.00	15	1.442	0.367	0.476	0.148	2	13
NextNet BTS-2500	131.00	105	1.442	0.367	0.476	0.148	13	89
Argus LLPX310R	131.00	86	1.442	0.367	0.476	0.148	11	73
DragonWave A-ANT-18G	131.00	48	1.442	0.367	0.476	0.148	6	40
Clearwire Mount	131.00	560	1.442	0.367	0.476	0.148	72	475
SWR FMEC/1	123.00	15	1.271	0.082	0.311	0.052	1	13
Alcatel-Lucent RRH2x	113.00	157	1.073	-0.084	0.170	-0.032	-4	133

Alcatel-Lucent RRH 2	113.00	119	1.073	-0.084	0.170	-0.032	-3	101
Alcatel-Lucent RRH2x	113.00	170	1.073	-0.084	0.170	-0.032	-5	144
Nokia B66a RRH4x45 (	113.00	170	1.073	-0.084	0.170	-0.032	-5	145
RFS APL868013-12T0	113.00	25	1.073	-0.084	0.170	-0.032	-1	21
RFS APL866513-12T0-0	113.00	31	1.073	-0.084	0.170	-0.032	-1	27
RFS DB-T1-6Z-8AB-0Z	113.00	88	1.073	-0.084	0.170	-0.032	-2	75
Commscope JAHH-65B-	113.00	364	1.073	-0.084	0.170	-0.032	-10	308
Round T-Arm	113.00	750	1.073	-0.084	0.170	-0.032	-21	636
4' Std. Dish	70.00	188	0.412	0.014	0.006	0.036	6	159
		37,432	83.136	37.072	30.568	11.057	2,913	31,748

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.10	-2.91	0.00	-325.56	0.00	325.56	3,133.66	1,566.83	4,776.46	2,358.91	0.00	0.00	0.069
2.00	-44.74	-2.89	0.00	-319.74	0.00	319.74	3,116.86	1,558.43	4,710.21	2,326.20	0.00	-0.01	0.069
5.00	-42.49	-2.82	0.00	-311.07	0.00	311.07	3,091.35	1,545.67	4,611.19	2,277.30	0.01	-0.03	0.056
10.00	-40.26	-2.74	0.00	-296.94	0.00	296.94	3,047.99	1,524.00	4,447.17	2,196.29	0.05	-0.05	0.054
15.00	-38.93	-2.69	0.00	-283.23	0.00	283.23	3,003.60	1,501.80	4,284.50	2,115.95	0.11	-0.07	0.053
18.00	-38.20	-2.66	0.00	-275.16	0.00	275.16	2,976.47	1,488.23	4,187.58	2,068.09	0.16	-0.08	0.052
18.00	-38.20	-2.66	0.00	-275.16	0.00	275.16	2,976.47	1,488.23	4,187.58	2,068.09	0.16	-0.08	0.062
20.00	-36.39	-2.58	0.00	-269.83	0.00	269.83	2,958.17	1,479.08	4,123.27	2,036.33	0.20	-0.09	0.061
25.00	-34.61	-2.50	0.00	-256.92	0.00	256.92	2,911.70	1,455.85	3,963.58	1,957.46	0.31	-0.12	0.059
30.00	-34.07	-2.49	0.00	-244.40	0.00	244.40	2,864.18	1,432.09	3,805.55	1,879.42	0.44	-0.14	0.057
31.50	-32.35	-2.40	0.00	-240.67	0.00	240.67	2,849.69	1,424.85	3,758.37	1,856.12	0.49	-0.15	0.056
35.00	-32.02	-2.39	0.00	-232.28	0.00	232.28	2,805.48	1,402.74	3,636.10	1,795.73	0.60	-0.17	0.055
35.67	-30.62	-2.31	0.00	-230.68	0.00	230.68	2,231.05	1,115.53	2,951.35	1,457.56	0.63	-0.17	0.062
40.00	-29.00	-2.23	0.00	-220.66	0.00	220.66	2,201.95	1,100.98	2,850.70	1,407.85	0.79	-0.19	0.060
45.00	-27.41	-2.15	0.00	-209.50	0.00	209.50	2,167.39	1,083.69	2,735.30	1,350.86	1.01	-0.22	0.057
50.00	-25.83	-2.07	0.00	-198.73	0.00	198.73	2,131.78	1,065.89	2,620.87	1,294.35	1.25	-0.24	0.055
55.00	-24.51	-2.01	0.00	-188.37	0.00	188.37	2,095.13	1,047.56	2,507.52	1,238.37	1.52	-0.27	0.053
59.00	-24.27	-2.00	0.00	-180.33	0.00	180.33	2,065.06	1,032.53	2,417.69	1,194.00	1.76	-0.29	0.050
59.00	-24.27	-2.00	0.00	-180.33	0.00	180.33	2,065.06	1,032.53	2,417.69	1,194.00	1.76	-0.29	0.073
60.00	-23.07	-1.95	0.00	-178.33	0.00	178.33	2,057.44	1,028.72	2,395.35	1,182.97	1.82	-0.30	0.072
65.00	-21.88	-1.92	0.00	-168.57	0.00	168.57	2,018.71	1,009.36	2,284.46	1,128.21	2.15	-0.33	0.070
70.00	-21.64	-1.92	0.00	-158.98	0.00	158.98	1,978.94	989.47	2,174.96	1,074.13	2.51	-0.37	0.067
70.00	-20.50	-1.89	0.00	-158.97	0.00	158.97	1,978.92	989.46	2,174.88	1,074.09	2.51	-0.37	0.067
73.50	-20.18	-1.90	0.00	-152.34	0.00	152.34	1,462.63	731.31	1,612.04	796.13	2.79	-0.39	0.076
75.00	-19.13	-1.90	0.00	-149.50	0.00	149.50	1,455.06	727.53	1,589.51	785.00	2.92	-0.41	0.075
80.00	-18.09	-1.93	0.00	-140.00	0.00	140.00	1,429.11	714.55	1,514.58	747.99	3.37	-0.44	0.071
85.00	-17.06	-1.98	0.00	-130.34	0.00	130.34	1,402.12	701.06	1,440.27	711.29	3.85	-0.48	0.067
90.00	-16.05	-2.03	0.00	-120.45	0.00	120.45	1,374.09	687.04	1,366.68	674.95	4.37	-0.52	0.063
95.00	-15.05	-2.09	0.00	-110.29	0.00	110.29	1,345.02	672.51	1,293.93	639.02	4.94	-0.55	0.058
100.00	-14.06	-2.14	0.00	-99.83	0.00	99.83	1,314.91	657.46	1,222.10	603.55	5.53	-0.59	0.054
105.00	-13.09	-2.18	0.00	-89.12	0.00	89.12	1,283.76	641.88	1,151.31	568.59	6.17	-0.62	0.049
110.00	-13.08	-2.18	0.00	-78.22	0.00	78.22	1,247.14	623.57	1,077.81	532.29	6.84	-0.65	0.044
110.00	-12.56	-2.20	0.00	-78.21	0.00	78.21	1,247.10	623.55	1,077.76	532.26	6.84	-0.65	0.044
110.00	-12.56	-2.20	0.00	-78.21	0.00	78.21	846.53	423.27	735.94	363.45	6.84	-0.65	0.053
113.00	-9.88	-2.23	0.00	-71.63	0.00	71.63	835.87	417.94	710.34	350.81	7.25	-0.67	0.047
115.00	-9.50	-2.22	0.00	-67.18	0.00	67.18	828.55	414.27	693.31	342.40	7.54	-0.68	0.045
119.00	-9.40	-2.22	0.00	-58.28	0.00	58.28	813.40	406.70	659.43	325.67	8.12	-0.70	0.037
119.00	-9.40	-2.22	0.00	-58.28	0.00	58.28	813.40	406.70	659.43	325.67	8.12	-0.70	0.191
120.00	-9.11	-2.22	0.00	-56.06	0.00	56.06	809.51	404.76	651.00	321.50	8.26	-0.71	0.186
123.00	-8.91	-2.22	0.00	-49.40	0.00	49.40	797.59	398.80	625.81	309.06	8.74	-0.79	0.171
125.00	-8.45	-2.19	0.00	-44.96	0.00	44.96	789.44	394.72	609.12	300.82	9.08	-0.84	0.160
130.00	-8.36	-2.19	0.00	-33.99	0.00	33.99	768.32	384.16	567.78	280.41	10.02	-0.95	0.132
131.00	-6.98	-2.03	0.00	-31.80	0.00	31.80	763.98	381.99	559.59	276.36	10.22	-0.97	0.124
135.00	-6.90	-2.02	0.00	-23.69	0.00	23.69	746.17	373.08	527.09	260.31	11.06	-1.04	0.100
136.00	-4.68	-1.63	0.00	-21.67	0.00	21.67	741.61	370.81	519.04	256.33	11.28	-1.06	0.091
140.00	-4.37	-1.56	0.00	-15.14	0.00	15.14	722.98	361.49	487.14	240.58	12.20	-1.11	0.069
145.00	-4.07	-1.47	0.00	-7.34	0.00	7.34	694.06	347.03	445.03	219.79	13.39	-1.16	0.039
150.00	0.00	-1.38	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	14.62	-1.18	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-31.24	-2.91	0.00	-320.12	0.00	320.12	3,133.66	1,566.83	4,776.46	2,358.91	0.00	0.00	0.066
2.00	-30.31	-2.89	0.00	-314.30	0.00	314.30	3,116.86	1,558.43	4,710.21	2,326.20	0.00	-0.01	0.065
5.00	-28.79	-2.82	0.00	-305.64	0.00	305.64	3,091.35	1,545.67	4,611.19	2,277.30	0.01	-0.03	0.053
10.00	-27.28	-2.73	0.00	-291.57	0.00	291.57	3,047.99	1,524.00	4,447.17	2,196.29	0.05	-0.05	0.052
15.00	-26.37	-2.67	0.00	-277.92	0.00	277.92	3,003.60	1,501.80	4,284.50	2,115.95	0.11	-0.07	0.050
18.00	-25.88	-2.64	0.00	-269.90	0.00	269.90	2,976.47	1,488.23	4,187.58	2,068.09	0.16	-0.08	0.049
18.00	-25.88	-2.64	0.00	-269.90	0.00	269.90	2,976.47	1,488.23	4,187.58	2,068.09	0.16	-0.08	0.059
20.00	-24.66	-2.56	0.00	-264.61	0.00	264.61	2,958.17	1,479.08	4,123.27	2,036.33	0.19	-0.09	0.058
25.00	-23.45	-2.48	0.00	-251.81	0.00	251.81	2,911.70	1,455.85	3,963.58	1,957.46	0.30	-0.11	0.056
30.00	-23.08	-2.46	0.00	-239.42	0.00	239.42	2,864.18	1,432.09	3,805.55	1,879.42	0.43	-0.14	0.054
31.50	-21.92	-2.37	0.00	-235.73	0.00	235.73	2,849.69	1,424.85	3,758.37	1,856.12	0.48	-0.15	0.053
35.00	-21.70	-2.35	0.00	-227.45	0.00	227.45	2,805.48	1,402.74	3,636.10	1,795.73	0.59	-0.16	0.052
35.67	-20.74	-2.28	0.00	-225.87	0.00	225.87	2,231.05	1,115.53	2,951.35	1,457.56	0.62	-0.17	0.058
40.00	-19.65	-2.20	0.00	-215.99	0.00	215.99	2,201.95	1,100.98	2,850.70	1,407.85	0.78	-0.19	0.056
45.00	-18.57	-2.12	0.00	-205.00	0.00	205.00	2,167.39	1,083.69	2,735.30	1,350.86	0.99	-0.21	0.054
50.00	-17.50	-2.03	0.00	-194.42	0.00	194.42	2,131.78	1,065.89	2,620.87	1,294.35	1.23	-0.24	0.052
55.00	-16.61	-1.97	0.00	-184.25	0.00	184.25	2,095.13	1,047.56	2,507.52	1,238.37	1.49	-0.26	0.050
59.00	-16.44	-1.96	0.00	-176.37	0.00	176.37	2,065.06	1,032.53	2,417.69	1,194.00	1.72	-0.29	0.048
59.00	-16.44	-1.96	0.00	-176.37	0.00	176.37	2,065.06	1,032.53	2,417.69	1,194.00	1.72	-0.29	0.069
60.00	-15.63	-1.91	0.00	-174.41	0.00	174.41	2,057.44	1,028.72	2,395.35	1,182.97	1.78	-0.29	0.068
65.00	-14.82	-1.87	0.00	-164.87	0.00	164.87	2,018.71	1,009.36	2,284.46	1,128.21	2.10	-0.33	0.066
70.00	-14.66	-1.87	0.00	-155.50	0.00	155.50	1,978.94	989.47	2,174.96	1,074.13	2.47	-0.36	0.064
70.00	-13.89	-1.85	0.00	-155.49	0.00	155.49	1,978.92	989.46	2,174.88	1,074.09	2.47	-0.36	0.063
73.50	-13.67	-1.85	0.00	-149.02	0.00	149.02	1,462.63	731.31	1,612.04	796.13	2.74	-0.39	0.072
75.00	-12.96	-1.85	0.00	-146.26	0.00	146.26	1,455.06	727.53	1,589.51	785.00	2.86	-0.40	0.071
80.00	-12.25	-1.88	0.00	-136.99	0.00	136.99	1,429.11	714.55	1,514.58	747.99	3.30	-0.43	0.067
85.00	-11.55	-1.93	0.00	-127.58	0.00	127.58	1,402.12	701.06	1,440.27	711.29	3.77	-0.47	0.063
90.00	-10.87	-1.98	0.00	-117.94	0.00	117.94	1,374.09	687.04	1,366.68	674.95	4.29	-0.51	0.060
95.00	-10.19	-2.04	0.00	-108.03	0.00	108.03	1,345.02	672.51	1,293.93	639.02	4.84	-0.54	0.055
100.00	-9.52	-2.09	0.00	-97.83	0.00	97.83	1,314.91	657.46	1,222.10	603.55	5.42	-0.58	0.051
105.00	-8.86	-2.13	0.00	-87.37	0.00	87.37	1,283.76	641.88	1,151.31	568.59	6.04	-0.61	0.046
110.00	-8.86	-2.13	0.00	-76.71	0.00	76.71	1,247.14	623.57	1,077.81	532.29	6.70	-0.64	0.042
110.00	-8.50	-2.15	0.00	-76.70	0.00	76.70	1,247.10	623.55	1,077.76	532.26	6.70	-0.64	0.042
110.00	-8.50	-2.15	0.00	-76.70	0.00	76.70	846.53	423.27	735.94	363.45	6.70	-0.64	0.050
113.00	-6.69	-2.19	0.00	-70.27	0.00	70.27	835.87	417.94	710.34	350.81	7.11	-0.66	0.045
115.00	-6.43	-2.19	0.00	-65.90	0.00	65.90	828.55	414.27	693.31	342.40	7.38	-0.67	0.042
119.00	-6.36	-2.19	0.00	-57.15	0.00	57.15	813.40	406.70	659.43	325.67	7.95	-0.69	0.035
119.00	-6.36	-2.19	0.00	-57.15	0.00	57.15	813.40	406.70	659.43	325.67	7.95	-0.69	0.183
120.00	-6.17	-2.18	0.00	-54.97	0.00	54.97	809.51	404.76	651.00	321.50	8.10	-0.69	0.179
123.00	-6.03	-2.18	0.00	-48.42	0.00	48.42	797.59	398.80	625.81	309.06	8.56	-0.77	0.164
125.00	-5.71	-2.15	0.00	-44.07	0.00	44.07	789.44	394.72	609.12	300.82	8.89	-0.82	0.154
130.00	-5.65	-2.14	0.00	-33.33	0.00	33.33	768.32	384.16	567.78	280.41	9.81	-0.93	0.126
131.00	-4.72	-1.99	0.00	-31.18	0.00	31.18	763.98	381.99	559.59	276.36	10.01	-0.95	0.119
135.00	-4.67	-1.98	0.00	-23.24	0.00	23.24	746.17	373.08	527.09	260.31	10.84	-1.02	0.096
136.00	-3.16	-1.60	0.00	-21.26	0.00	21.26	741.61	370.81	519.04	256.33	11.05	-1.04	0.087
140.00	-2.95	-1.53	0.00	-14.85	0.00	14.85	722.98	361.49	487.14	240.58	11.95	-1.09	0.066
145.00	-2.75	-1.44	0.00	-7.20	0.00	7.20	694.06	347.03	445.03	219.79	13.12	-1.14	0.037
150.00	0.00	-1.38	0.00	0.00	0.00	0.00	659.19	329.60	401.19	198.13	14.33	-1.16	0.000

Analysis Summary

Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.6W	31.45	0.00	44.89	0.00	0.00	3099.24	119.00	0.83
0.9D + 1.6W	31.43	0.00	33.66	0.00	0.00	3064.70	119.00	0.81
1.2D + 1.0Di + 1.0Wi	6.80	0.00	78.00	0.00	0.00	713.20	119.00	0.23
(1.2 + 0.2Sds) * DL + E ELFM	1.46	0.00	46.10	0.00	0.00	178.13	119.00	0.07
(1.2 + 0.2Sds) * DL + E EMAM	2.91	0.00	46.10	0.00	0.00	325.56	119.00	0.19
(0.9 - 0.2Sds) * DL + E ELFM	1.46	0.00	31.24	0.00	0.00	175.28	119.00	0.07
(0.9 - 0.2Sds) * DL + E EMAM	2.91	0.00	31.24	0.00	0.00	320.12	119.00	0.18
1.0D + 1.0W	7.38	0.00	37.43	0.00	0.00	707.06	119.00	0.19

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	119.	(4) SOL-#18 All Thre	339.6	10.2	16.8	71.5	12.0	6	10	0.0	12.0	0	0	223.1	249.8	0.893
0.00	59.0	(4) SOL-#18 All Thre	193.2	5.8	16.8	136.9	12.0	12	18	0.0	12.0	0	0	198.5	249.8	0.795
2.00	18.0	(2) PL-PL 4" x 1"	117.3	1.4	25.3	122.0	25.3	5	8	134.3	25.3	6	8	161.9	174.4	0.928
2.00	18.0	(2) PL-PL 5" x 1"	146.6	1.8	25.3	152.5	25.3	7	8	167.8	25.3	7	8	202.3	218.0	0.928

Code Rev.	G	Date	12/19/2017
		Engineer	Travis.Gatling
		Site #	302484
Moment	3099.2 k-ft	Carrier	VERIZON WIRELESS
Axial	44.9 k		

Base/Flange Plate	Plate Type	*Baseplate*	
	Pole Diameter	37.38	in
	Pole Thickness	0.375	in
	Plate Length	44	in
	Plate Thickness	2.5	in
	Plate Fy	60	ksi
	Weld Length	0.3125	in
	ϕ_s Resistance	1382.37	k-in
	Applied	637.27	k-in
Stiffeners	#	*0*	

Bolts	#	*8*	
	Bolt Circle	44	in
	(R)adial / (S)quare	S	
	Bolt Gap	6	in
	Diameter	2.25	in
	Hole Diameter	2.625	in
	Type	A615-75	
	Fy	75	ksi
	Fu	100	ksi
	ϕ_s Resistance	259.82	k
	Applied	189.10	k
Reinforcement	#	*4*	
	DYW. Circle	44	in
	Offset Angle	45	°
	Type	#18	
	Diameter	2.257	in
	Fu	100	ksi
	ϕ_s Resistance	320.07	k
	Applied	288.64	k
Extra Bolts O	#	*4*	
	Bolt Circle	44	in
	(R)adial / (S)quare	R	
	Offset Angle	45	°
	Diameter	2.25	in
	Type	#18	
	Fy	80	ksi
	Fu	100	ksi
	ϕ_s Resistance	259.82	k
	Applied	142.19	k

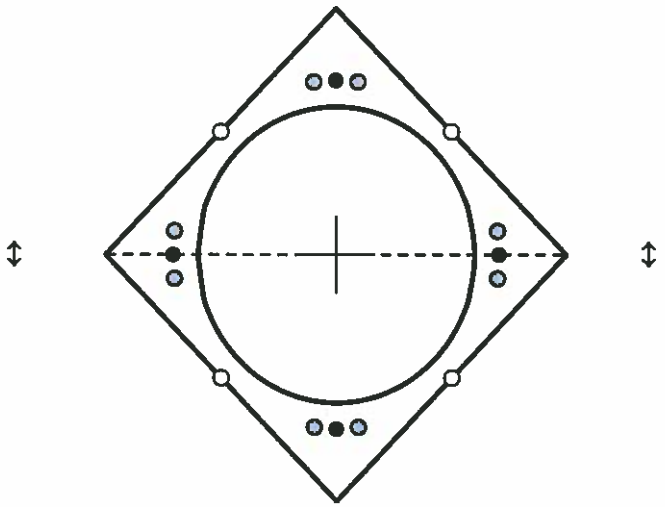


Plate Stress Ratio:
0.46 (Pass)

Bolt Stress Ratio:
0.73 (Pass)

Extra Bolt Stress Ratio:
0.55 (Pass)

Reinforcement Stress Ratio:
0.90 (Pass)

Base/Flange Plate	Plate Type	*Flange @ 110.0 ft*
	Pole Diameter	21.25 in
	Pole Thickness	0.1875 in
	Plate Diameter	28.5 in
	Plate Thickness	1 in
	Plate Fy	60 ksi
	Weld Length	0.1875 in
	ϕ_s Resistance	75.10 k-in
	Applied	19.09 k-in
Stiffeners	#	*0*

Bolts	#	*12*
	Bolt Circle	25.75 in
	(R)adial / (S)quare	R
	Diameter	1 in
	Hole Diameter	1.125 in
	Type	A325
	Fy	92 ksi
	Fu	120 ksi
	ϕ_s Resistance	54.52 k
	Applied	12.73 k
Reinforcement	#	*4*
	DYW. Circle	34.41 in
	Offset Angle	45 °
	Type	#18
	Diameter	2.257 in
	Fu	100 ksi
	ϕ_s Resistance	320.07 k
	Applied	74.68 k
Extra Bolts O	#	*0*

Code Rev. G

Moment 391.5 k-ft
Axial 11.1 k

Date 12/19/2017
Engineer Travis.Gatling
Site # 302484
Carrier VERIZON WIRELESS

Required Flange Thickness:
0.50 in OK

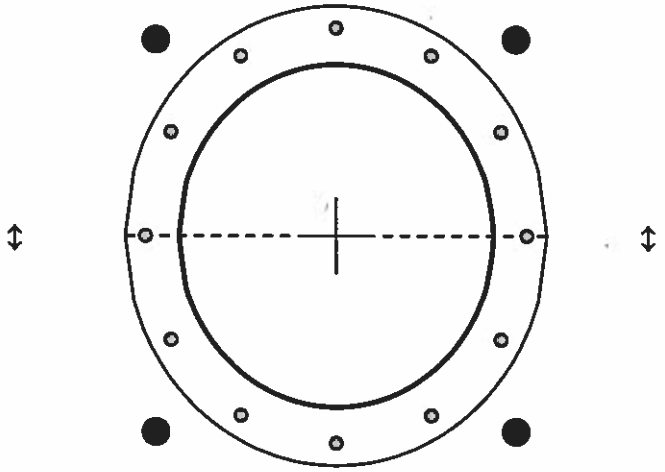
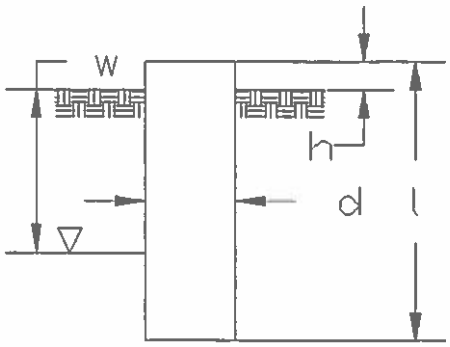


Plate Stress Ratio:
0.25 (Pass)

Bolt Stress Ratio:
0.23 (Pass)

Reinforcement Stress Ratio:
0.23 (Pass)

Site Name:	Branford CT 6, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302484	*American Tower Corporation*	
Engineer:	Travis.Gatling		
Engineering Number:	OAA720088		
Date:	12/19/17		



Design Base Loads (Factored) - Analysis per TIA-222-G Standards

Analyze or Design a Foundation?	Analyze	
Foundation Mapped:	Y	
Moment (M):	3099.2	k-ft
Shear/Leg (V):	31.5	k
Axial Load (P):	44.9	k
Uplift/Leg (U):	0.0	k
Tower Type (GT / SST / MP):	MP	
Diameter of Caisson (d):	5.0	ft
Caisson Embedment (L-h):	22.25	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	4.5	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	1.00	
Pullout Angle:	30.0	degrees

Engineer Notes

Soil Mechanical Properties

Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0.0	5.0	125	0	0	0	0
5.0	7.0	125	0	35	0	0
7.0	23.3	125	8000	0	0	8000

Required Embedment:	15.2	ft - OK, Caisson Embedment Satisfactory
Volume of Concrete:	446.7	ft^3 = 16.5 yd^3
Weight of Concrete (Buoyancy Effect Considered):	45.3	k
Average Soil Unit Weight:	75.2	pcf
Skin Friction Resistance:	0.0	k
Compressive Bearing Resistance:	157.1	k
Pullout Weight (Minus Concrete Weight):	458.1	k
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	33.9	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	117.8	k
P_u:	58.0	k
$T_u/\phi_s T_n$:	0.00	Result: OK
$P_u/\phi_s P_n$:	0.49	Result: OK
Total Lateral Resistance:	4156.9	k
Inflection Point (Below Ground Surface):	15.1	ft
Design Overturning Moment At Inflection Point (M_D):	3591.1	k-ft
Nominal Moment Capacity ($\phi_s M_n$):	11364.1	k-ft
$M_D/\phi_s M_n$:	0.32	Result: OK
ϕ_s:	0.75	

Site Name: ***BRANFORD 2 CT***
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW 700	746	1	929	929	113	0.0262	0.4973	5.26%
VZW Cellular	876	3	297	892	113	0.0251	0.5840	4.30%
VZW 850 LTE	870	1	1964	1964	113	0.0553	0.5800	9.54%
VZW PCS	1970	1	1036	1036	113	0.0292	1.0000	2.92%
VZW AWS	2145	1	3493	3493	113	0.0984	1.0000	9.84%
Total Percentage of Maximum Permissible Exposure								31.85%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case maximum values used.

Town of Branford

Geographic Information System (GIS)

Date Printed: 2/2/2018

MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Branford and its mapping contractors assume no legal responsibility for the information contained herein.

0 200 Feet

N W E S

Town of Branford
Property Listing Report

Parcel ID D02/000/003/00001

Account 004475

Property Information

Owner	JACONETTE EDWARD F JR &
Address	405 BRUSHY PLAIN RD
Mailing Address	405 BRUSHY PLAIN RD BRANFORD , CT 06405
Land Use	- TEL REL TW MDL96
Land Class	I

Census Tract	
Neighborhood	0050
Zoning	R-4
Acreage	4.5
Utilities	Well,Public Sewer
Lot Setting/ Desc	/ Rolling

Photo

PARCEL VALUATIONS (Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings	167200	117000
Outbuildings	1800	1300
Improvements	173100	121200
Extras	4100	2900
Land	362200	253500
Total	535300	374700
Previous		

Construction Details

Year Built	1992
Stories	1
Building Style	Warehouse
Building Use	Ind/Comm
Building Condition	03
Total Rooms	
Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Shed
Roof Cover	T&G/Rubber

EXTERIOR WALLS:	
Primary	MASONRY
Secondary	Precast Panel
INTERIOR WALLS:	
Primary	Minim/Masonry
Secondary	
FLOORS:	
Primary	Concr-Finished
Secondary	
HEATING/AC:	
Heating Type	Hot Air-no Duc
Heating Fuel	Electric
AC Type	Heat Pump

BUILDING AREA:	
Effective Building Area	
Gross Building Area	1100
Total Living Area	550

SALES HISTORY:	
Sale Date	11/18/2002
Sale Price	
Book/ Page	0788/1038

Report Created On 2/2/2018